ARCHIVES OF OPHTHALMOLOGY.

PSAMMOSARCOMA OF THE ORBIT IN A GIRL OF THIRTEEN. SUCCESSFUL REMOVAL WITH PRESERVATION OF THE EYEBALL AND ITS FUNCTIONS.[1]

BY G. E. DE SCHWEINITZ, M.D., PHILADELPHIA.

(With six figures on Text-Plates, XI, XII, and XIII.)

THE history of the case which follows, as well as the results of the microscopic examination of the growth, are of sufficient interest to justify their publication.

A girl, aged thirteen, presented herself for examination in the Eye Dispensary of the Hospital of the University of Pennsylvania on February 20, 1913, in the hope of relief from a growth which occupied the upper and inner portion of the left orbit.

Family History.—The patient's father is living and in good health. He has a shortened atrophic right lower extremity, the result, he maintains of an attack of cholera infantum when he was six years of age. Her mother died one year ago from cardiac disease following rheumatism. One sister died when she was one week old, the cause of death being unknown. There is no history of tuberculosis, neoplasm, or renal disease in either the paternal or maternal line. The father denies specific taint and there are no evidences of syphilis. He has never had gonorrhea.

Social History.—The patient was born in New Jersey and is a schoolgirl. Menstruation is not yet established; she does not drink coffee; uses tea moderately, as well as pastry and sweets, and has always been "a heavy meat-eater." During the past five years she has been in constant attendance on a sick mother.

[1] Read before the American Ophthalmological Society, May, 1914.

Previous Medical History.—The patient was born in normal labor and was a bottle-fed infant. She has had measles, chicken-pox, and whooping-cough, but otherwise has always been in good health. There is no history of tonsillitis, and she is not subject to colds. Occasionally she has had attacks of toothache, but her teeth are in good condition and she is under proper dental care. Six years ago she fell downstairs, striking her forehead; but this accident appears to have left no sequel, and a physician's examination at the time was negative. She has not suffered from dyspnea or palpitation or cough. Her appetite is good; bowels are regular; there has been no increase nor loss in weight; no insomnia; no night-sweats. Her mentality is far beyond the average. In point of fact, she is an unusually bright, attractive girl.

History of Present Condition.—About two and a half years ago a tumor-like mass protruding from the upper and inner part of the left orbit was noticed; there was no history of trauma except the blow on the forehead previously noted. This growth did not appear in relation to any acute illness. It has never exhibited the slightest inflammation, nor has it ever been painful. Slowly the mass increased in size, pushing the eyeball downward and outward, but this disfigurement was unassociated with diplopia or loss of vision. One year prior to her examination in the Hospital of the University of Pennsylvania she consulted the ophthalmic department of another hospital, and her father remembers that the surgeon in charge told him that there was a tumor of the orbit but that he did not consider operation wise. The records of this hospital have been carefully searched, but no account of this examination has been found.

Ocular Examination.—Right eye, vision $\frac{6}{6}$; accommodation normal; fundus entirely healthy. Left eye, vision $\frac{6}{6}$; no swelling or atrophy of the disk; in fact, no departure from normality, so far as the ophthalmoscope could discover. The rotations of the left eye were normal in all directions and there was no diplopia. The eyeball was displaced downward and slightly outward, and was *7mm* below the level of the opposite eye. At the upper and inner portion of the orbit there was a rather dense growth, with a faintly elastic sensation on deep palpation, the surface of the mass appearing to slope downward from the orbital margin and bulge slightly forward at its inner angle (Fig. 1).

The patient was admitted to the hospital and carefully examined in all respects. All tests gave negative results, and the ordinary rhinopharyngeal examination and accessory sinus investigation failed to determine the presence of disease in any of these regions. An X-ray examination by

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FIG. 1.—Psammosarcoma of orbit.

FIG. 4.—Psammosarcoma of orbit. Result after operation.

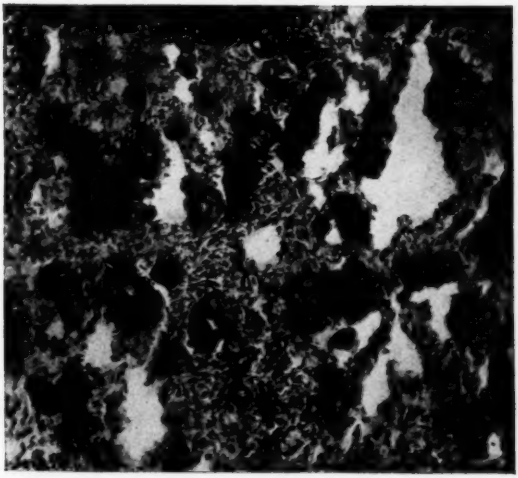

FIG. 5.—Photomicrograph of psammosarcoma of orbit.

Dr. Pancoast was as follows: The skull gave evidence of the influence of increased intracranial pressure in that the markings of the convolutions were visible on the inner table. Radiograms in the anteroposterior direction showed that the greater part of the roof of the orbit was pushed upward and somewhat to the right. The frontal sinuses were obliterated on the left side as far as the midline. The anterior ethmoids were not encroached upon.

The lateral stereoscopic plates showed that the elevation of bone representing the roof of the orbit extended back as far as the level of the anterior aspect of the anterior clinoid processes. The posterior walls of the right frontal sinuses could not be seen, indicating that they were either very much thinned or that they were destroyed (Fig. 2).

It was evident from this examination that the growth was situated in the orbit, and although it had compressed the frontal sinus in the manner already described, it did not involve it and did not appear to proceed from it or from the ethmoid. The patient was advised to submit to an exploration of the orbit, but at that time operative interference was declined. She returned again in December of the same year, with the conditions practically identical with those which have already been recorded, vision and the field of vision continuing to be normal, and with no ophthalmoscopic signs of disease in either fundus. The eye was not proptosed, and the rotations continued to be normal. Hertel's instrument failed to show any material difference in the position of the apices of the corneæ, although it is possible that there may have been about half a millimeter difference, that is to say, right 13, left 13½. All the examinations which have been previously described were repeated, and again the patient was urged to permit operative interference. Consent was given, and on January 9th I performed the following operation, with the assistance of Dr. John T. Carpenter:

A curved incision was made, beginning at the center of the left eyebrow and continued through the eyebrow and along the inner side of the nose to a point exactly opposite the inner commissure. The tissues were gradually dissected downward, the eyeball being properly protected with a horn spatula, and quickly there was exposed a plate of bone, which was continuous with the brow above and the inner edge of the orbit

to the nasal side, sloping downwards so that when exposed it presented a surface about 2½*cm* in height and 2*cm* in width. This bony capsule was apparently complete, and therefore with a fine grooved chisel it was opened along the orbital margin and the nasal side, and the plate of bone lifted very much as a flap would be raised. It was about 4*mm* in thickness, and as soon as the chisel penetrated the cyst-like cavity, a small quantity of perfectly clear fluid escaped, which unfortunately was lost, and within the bony capsule was found a mass of tissue which in consistence and somewhat in color suggested brain tissue. This was carefully removed with a scoop and preserved for examination. The bony capsule was then removed piece by piece, and was found to be complete, all of it, however, outside of the muscle cone. A slightly ragged edge which was left along the upper and inner orbital margin was cleanly removed with rongeur forceps, and the edges smoothed with a sharp chisel. A cavity now existed between the muscle cone and the inner side of the orbit of very considerable size, estimated to be large enough to contain a small egg. There was practically no hemorrhage, and it did not seem that any of the ocular muscles had been harmed in the operation except probably the tendon of the superior oblique. The only vessel which required ligation was the supraorbital artery. The wound was closed in the ordinary way with interrupted sutures, and a drainage tube inserted in its most dependent portion (Fig. 3).

For a few days there was a rather liberal discharge of blood-stained serum, and at each dressing through the drainage tube the cavity was flushed with a saturated boric acid solution. On the fifth or sixth day the fluid which was regurgitated after the irrigations presented a few flakes of mucopus. On the tenth day the patient went home, her house being in the neighborhood of the hospital. She returned, however, in twenty-four hours with some pain and swelling, due to a small collection of pus within the cavity, which was evacuated, and after its evacuation healing was uncomplicated. The drainage-tube was removed, and no further complication of any kind occurred.

As may be seen from the illustration, the eye has returned almost entirely to its normal position (Fig. 4). Vision is

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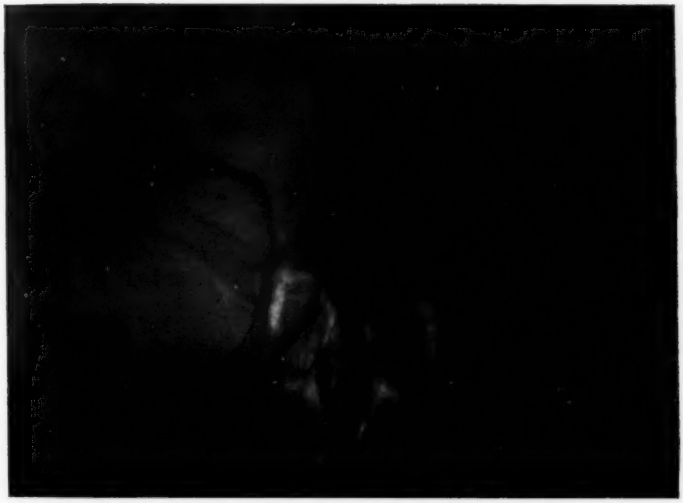

FIG. 2.—X-ray plate prior to operation, showing the pushing upward of the roof of the orbit and partial obliteration of the left frontal sinus.

FIG. 3.—X-ray plate after operation, showing drainage tube in position.

perfectly acute, and the only postoperative complication is diplopia, quite typical of paresis of the left superior oblique. This has gradually subsided, and at the present is noticeable only if the patient looks strongly down and to the right. When the diplopia was at its maximum the double images were fused by a 6-degree prism base out, and a 25-degree prism base down—that is, there was an esophoria of 6 degrees and a left hypertropia of 25 degrees. This is now reduced to esophoria, 6°; left hyperphoria, 7°.

A specimen was sent for examination to the Laboratory of Surgical Pathology, and the sections were prepared by Dr. John Speese, who furnishes the following report:

> The specimen consists of numerous fragments of tissue, a portion of thin bone and periosteum. The tissue described is soft in consistency, yellow in color, and contains minute points of hemorrhage. Microscopic examination demonstrates that the tissue is composed of a very cellular process in which are imbedded enormous numbers of refractile bodies; the nuclei of the cells for the most part are spindle in shape and present decided irregularities in size. Here and there the cells are drawn out to form distinct fibrils which ramify between the tumor-cells. The tissue is well vascularized, the vessel walls in many instances being surrounded by the cells of the tumor, so that a single layer of endothelium separates the vessel from the tumor-cells. Here and there throughout the tissue free hemorrhage is noted. The refractile bodies are uniformly round; their centers are pink, and the outer rims dark blue in color. These bodies are found in all portions of the tumor tissue. Unstained sections of the growth were treated with sulphuric acid. As no evolution of gas followed, the bodies were evidently not calcium carbonate in composition. They underwent solution and became represented by groups of crystals of calcium sulphate, hence they are composed mainly of calcic phosphate, or similar salts of lime, and as the cells are those seen in sarcoma, and as these sand bodies are so freely present, the diagnosis of psammosarcoma seems justified. Figs. 5 and 6.

Remarks.—In my previous experience I have not encountered a tumor of this character in the orbit—that is to say, encountered a sarcoma which contained sand bodies and which was enclosed completely in a thin bony capsule. I

have not made any systematic search of the literature, but such a growth is not mentioned in Lagrange's *Traite des Tumeurs de l'Œil de l'Orbite et des Annexes*, nor in Parsons's *Pathology of the Eye*.

Psammoma does not represent a distinct species of tumor growth, but, as we know, is the name given to tumors in which the presence of calcareous matter similar to that of brain sand has been demonstrated, and these psammomas are usually encountered in the membranes of the brain, the choroid plexus, and the pineal gland. These sand bodies may be found in tumors of various elements, and if their cells are sarcomatous, the term psammosarcoma is usually applied. According to Adami, these psammomas are practically always of endothelial origin, and he explains their appearance as due to localized overgrowth of the capillary endothelium, at first in the main concentrically, so that the capillary becomes enlarged by the deposit of layer within layer of these endothelial cells. Thus, in the hemangio-endotheliomas of the dura mater microscopic examination will demonstrate, according to Adami, a collection of whorls of concentrically displaced cells, and sometimes a whorl may be found in the lumen of which red corpuscles are demonstrable. Whorls may also be noted which show hyalin changes, and frequently there is a deposition of calcareous salts in these degenerated areas. In other words, they become tumors which, when this calcareous change is marked, receive the name of psammoma.

Now it would seem possible in the present instance that the numerous calcareous bodies which are evident in the tumor I am describing have had somewhat similar origin and have developed in the capillary system of the growth by a process of degeneration and deposition of lime salts, although I have not succeeded in any of my sections in finding a whorl of this character, the center of which contains blood corpuscles; in other words, I have not demonstrated a transition from a blood-vessel into the sand body.[1] Although psammomas are most common in the brain and choroid plexus, they are by no

[1] Since writing this paper I have removed an intradural tumor of the optic nerve containing many sand bodies. The sections readily demonstrate the origin of these sand bodies in the manner described above.

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FIG. 6.—Psammosarcoma of orbit; spindle cells, "sand bodies" and free hemorrhage.

means confined to this region, and I have myself seen in the laboratory of Dr. Allen J. Smith, Professor of Pathology in the University of Pennsylvania, an endothelioma of the abdomen which is crowded with sand bodies.

Exactly how the growth originated independently of the formation to which I have just made reference is not quite clear. Continuous with the supraorbital ridge and the inner margin of the orbit, and passing downward, backward, and slightly forward, it was evident after removal that there was not the slightest involvement of the frontal bone, nor, indeed, of any of the bones which compose the orbit and with which it was in close relation. It would seem that it must have sprung from the periosteum, and that the bony capsule was produced in the process of the development of the sarcoma, very much in the same way as layers of bone are produced in the so-called peripheral sarcomas of bones which are most frequently seen in the long bones. It had no connection with the muscle cone and was completely walled in by its bony capsule from the other orbital contents, which were entirely free from any pathological process. Whatever may be the ultimate outcome of this interesting case, thus far there has not been the slightest sign of recurrence, and the child is in perfect condition.

THE CONVERGENCE INDEX AS A MEASURE OF THE CONVERGING POWER.[1]

By ALEXANDER DUANE, M.D., New York City.

With one illustration in the text.

TWO methods of determining the converging power are in general use. One consists in determining the ability to overcome prisms, base out, thus measuring what is usually called the adduction but is more properly termed the prism-convergence; the other consists in determining the convergence near-point.[2]

The prism convergence furnishes at best only an approximate indication of the real converging power. As is well known, the ability to overcome prisms, base out, varies extremely, the variations evidently not representing real differences in converging power but differences simply in knack, *i. e.*, aptitude in learning to perform an unaccustomed act. So we find some, who at the start can overcome but 12° or 15° prism, base out, and who only after repeated trials can do more, and we find others who pass at once from these lower to the higher degrees. Yet, as other tests show, the two have equal and evidently normal converging power. It is only when the patient, after repeated trials, cannot overcome more than a certain comparatively weak prism, and particularly when, even if he does pass from one number to the next higher, he can maintain fusion with the latter but momentarily, that we can predicate from this test a low converging power. In such cases alone the prism convergence really becomes of value as a measure of the convergence, since it then really indicates the

[1] Read before the American Ophthalmological Society, May 13, 1914.

[2] The converging power may also be determined with the amblyoscope or stereoscope, but these tests are not in common use for this purpose.

maximum of converging power attainable. In the other cases it indicates much less than the true maximum.

Moreover, when strong prisms are used for measuring the convergence, the measurement is made uncertain by the fact that slight variations in the position of the prisms cause quite an appreciable change in their deflecting power, so that errors of 5° or 6° in the actual degree of convergence may thus be caused.

The determination of the convergence near-point (Pc) remains as our most reliable means of determining the actual converging power. It is often measured from the cornea, but should properly be measured from the base line connecting the centers of rotations of the two eyes. We should be careful in any case to indicate from what point the measurement is made. We may conveniently use the symbol PcC if the measurement is from the cornea and PcB if it is made from the base line.

THE CONVERGENCE INDEX

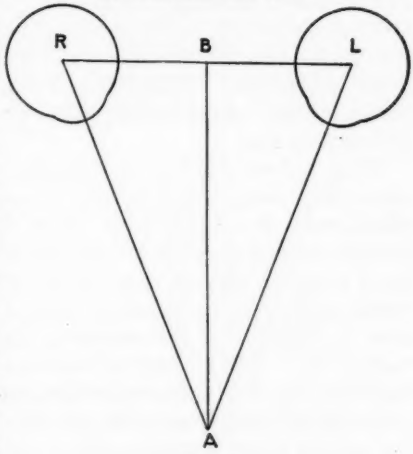

FIG. 1

A being the convergence near point, and AB its distance from the base line connecting the centers, R. L. of the two eyes, the convergence index C: $= \frac{RB}{AB} \times 100$. This normally ranges between 35 and 55. For all values of the index between 13 and 59, the relation holds that the angle of convergence RAL expressed in degrees equals Ci+3°.

In Fig. 1, AB denotes PcB. This distance (PcB) can be quite precisely measured as follows: The patient's correcting glasses, or in lieu of these a trial frame or spectacle frame placed on the patient's nose, are used as a reference plane, which is adjusted so as to be just 11.5*mm*[1] in front of the corneal apex when the

[1] 10.5*mm* if the eye is quite myopic; 12.5*mm* if the eye is highly hyperopic.

eyes are directed straight ahead. The apex of a millimeter rule is placed against the point where the reference plane crosses the nose, and the rule itself is held perpendicular to the plane, so as to lie strictly in the mid-line. Along this the test-object, which may consist of a pin with white head *2mm* in diameter, or a minute dot on a card, is carried straight toward the patient's nose, the patient all the time being exhorted to converge on it as sharply as he can. The moment the object doubles insuperably, or the moment one of the patient's eyes is seen to diverge, the distance of the object from the reference plane is measured. This distance plus *25mm* will equal the distance (PcB) of the convergence near-point from the inter-central base line.

When the patient has considerable vertical deviation, his converging power tested in this way may appear to be poor, when really it is quite good. For when the test-object is brought toward the eyes, he sees two images which he cannot bring together because they are on different levels. As he cannot unite them he makes no attempt to converge. In that case the dot used as the test-object should be replaced by a vertical line. The patient will converge on this, because when he does so the two images will unite, even if on different levels, since the bottom of one will join with the top of the other. On such an object a patient will be able to converge sharply, even when for the dot he had, apparently, very little converging power.

This convergence distance (PcB) may be used itself as an approximate measure of the converging power. As such it may be indicated either in *mm* or in meter angles. In the latter case $MA = \frac{1000}{PcB}$ where MA is the number of meter angles and PcB is given in *mm*. But the convergence varies not only with the convergence distance (PcB) but also with the inter-pupillary distance (Pd), for the greater the latter, the greater obviously the work the patient has to do in converging.

In fact, the true measure of the converging power is given by the fraction $\frac{RB}{AB} = \frac{\frac{1}{2}Pd.}{PcD}$. This equals evidently the tangent of half the angle of convergence, RAL = C. I propose for this ratio, or rather this ratio multiplied by 100, the name *convergence index* (Ci). We have therefore:

$$\text{Ci} = \frac{\frac{1}{2}\text{interpupillary distance} \times 100}{\text{PcB}}$$

A large number of measurements shows that the convergence index usually ranges from 35 to 50. A convergence index below 35 means low converging power and one persistently below 30 argues an actual convergence insufficiency. In many cases the index reaches 55, and at times even 60. The highest convergence index that I have actually found is 63. Now computation shows that the following rather remarkable and very convenient relation between the convergence index and the actual convergence in degrees of arc—in other words between Ci and C—obtains:

Ci	C
5 to 6	Ci + 1°
7 to 13	Ci + 2°
14 to 58	Ci + 3°
59 to 63	Ci + 2°
64 to 68	Ci + 1°
69 to 71	Ci

As an index of 14 means a convergence near-point distant 21 to 22*cm* (8 or 9 inches) and as an index above 58 is rarely met with, we say:

For all values of the converging power ordinarily met with, both in normal and abnormal cases, the actual converging power in degrees equals the convergence index plus 3°.

A simple case will illustrate the application of this rule. In a given patient we find a Pd of 60*mm* and the PcB is 75*mm*.

$$\text{Ci} = \frac{30 \times 100}{75} = 40$$

Hence the actual degree of convergence (C) is 43°.

Even for higher or lower degrees of converging power the error in applying the rule is practically negligible. Thus if a patient has a Pd of 62*mm* and a PcB of 300*mm* (about a foot)—an extreme case—the C reckoned by the rule would be 13°, whereas its true value is 12°; or a discrepancy of but one degree. So, too, if the patient with a Pd of 60 converged down to

within 45*mm* of the base line—also an extreme case—the value of C reckoned by the rule would be 69°, whereas the true value would be 67°. With a convergence so extraordinary, a difference of 2° is of no importance. But in the rare cases where Ci is above 60, it is best to use the table above given.

The interpupillary distance is readily measured thus. Patient and observer face each other, the patient covering his left eye, the observer his right, and each with his uncovered eye looking straight into the uncovered eye opposite him. The observer places the zero mark of a millimeter scale in line between his own open eye and the center of the patient's right pupil. Then each shuts the eye that was open and opens the one that was shut, the patient at the same time being directed to look with his now uncovered left eye into the observer's right. The point on the scale in line with the center of the patient's left pupil will indicate the interpupillary distance when the eyes are parallel, *i. e.*, the distance between the centers of the two eyes. To check the result, the patient should again close his left eye and the observer his right, each again opening the one that was closed. The zero point of the scale in this case should still be opposite the patient's right pupil.

This method gives an accurate measure of the interpupillary distance even when there is a considerable deflection of the eyes.

The rule above given is also obviously useful if we wish to determine the actual angle of convergence made by the visual lines when the patient is regarding an object at any rather near point, whether this is his actual near-point of convergence or not. When he is so converging, the angle of convergence (C′) is to all intents and purposes given by the relation.

$$C' = \frac{\frac{1}{2}\text{ interpupillary distance} \times 100}{D} + 3^\circ$$

where D = distance (from the intercentral base line) of the object.

We may make the statement perfectly general and also perfectly accurate by putting it as follows:

If an object is at a distance D from the intercentral base line, and we denote by C′ the fraction.

$$\frac{\text{½ interpupillary distance} \times 100}{\text{D}}$$

and by C′ the angle of convergence of the visual lines, then

C′ = Ci′ + 3° if D is between 5 and 22*cm.*
C′ = Ci′ + 2° if D is between 22 and 50*cm.*
C′ = Ci′ + 1° if D is between 50 and 100*cm.*
C′ = Ci′ if D is over 100*cm.*

Ci′ in this case may be called the *relative* convergence index, inasmuch as it corresponds to a point upon which the eyes are converged when not using their maximum converging power. When the eyes are converging to the maximum, so that D represents the distance (PcB) of the real near-point of convergence, the convergence index may be called *absolute.*

Since the convergence index by the simple relation indicated gives us the converging angle, it may be said to measure quite directly the *power* of convergence. It has been objected, however, that after all what we wish to know is, not so much the power as the availability of convergence. In other words, we wish to know, not how great the angle C is, but how close the near-point A is. The closeness of the latter, in fact, measures the usefulness of the converging power for the patient, just as the closeness of the near-point of accommodation measures the usefulness of the accommodation in enabling the patient to read. But there is a considerable difference between the two cases. Two persons with the same range of accommodation may have near-points differing widely, insomuch that one of the two can read with the utmost ease and the other cannot read at all. But if one person has the same convergence index as another he cannot have an essentially different convergence near-point. In fact, for any ordinary value of the index, the variations in the position of the convergence near-point cannot possibly amount to more than 2*cm.*,[1] and are usually much less, so long as the index remains the same. Even when the index is low, and the near-point of

[1] Thus, with a convergence index of 30 (quite the lower limit of normal converging power), the distance of the convergence near-point, *i. e.*, the PcB, would be 9.0*cm* if the interpupillary distance was 54*mm*, and 11.0*cm* if the interpupillary distance was 66*mm*.

convergence consequently remote, the discrepancies in the position of the latter, although now somewhat greater, are still relatively small and in no case so great as to be of practical importance.

We may say, therefore, that the convergence index is not only a true measure of the converging power, but gives also in all cases a sufficiently accurate notion of the utility of this converging power for the patient—*i. e.*, of its availability in enabling him to look at near objects.

A CASE OF SYMMETRICAL OCCLUSION OF THE PUPILS BY THE DEVELOPMENT OF CYSTS AND SMALL SOLID MASSES FROM THE UVEAL LAYER OF THE IRIS.[1]

By JOHN E. WEEKS, M.D., New York City.

(With five drawings on Text-Plate XIV.)

THE following case is reported because of unusual features:

Miss Nancy L. A., aged twenty-eight, was sent to me by Dr. Frank D. Skeel for treatment. Patient was feeble as a child. At the age of six and seven years was thought to be tuberculous. At the age of eleven years her eyes were examined by Dr. Sumner Hayward, of Rochester, N. Y., who discovered a formation of pigmented masses in the pupils, prognosticated blindness, and advised taking the child from school. At the age of eighteen years the patient's eyes were examined by Dr. Lucian Howe, of Buffalo, who has kindly given me the following notes of the case, made at that time:

"Ectropium of the edges of the iris in both eyes. In the right eye one spot near the inner margin measured two millimeters in diameter, and there were two other spots in that eye where the ectropium was also present. Posterior synechia was especially marked. The vision of the right eye was $\frac{6}{18}$. In the left eye two points of the ectropium were near the lower margin of the iris. V. $\frac{6}{12}$."

He advised giving up studies. Patient has suffered a great deal of pain in the eyes as long as she can remember. She continued her studies with some interruptions, in spite of some difficulty in seeing, and has always done more or less collateral reading. At the age of twenty-one years patient suffered from nervous prostration lasting more than a year. When twenty-two years of age patient consulted Dr. Adt, of Albany, N. Y., who endeavored to produce a diminution of the masses in the pupil by means of inter-

[1] Read before the American Ophthalmological Society, May, 1914.

nal medication. The vision of the eyes has gradually diminished.

Status Præsens: V. R. E., $\frac{20}{70}$; L. E., perception of light. Corneæ clear. Anterior chambers about of normal depth. Irides in central third conform in some degree to the shape of the lenses, giving the impression of broad posterior synechiæ. They do not dilate on use of atropin, except at one point in the upper-inner part of the right pupil, where a very small pupillary space may be obtained slightly larger than when atropin is not used.

Each pupil is occluded by small pigmented spherical masses varying in size. The right pupil presents four such masses, upper and lower, large masses measuring approximately 3.5*mm* and 3*mm*, and three smaller masses measuring 1 to 2*mm* in diameter. A small irregular opening in the pupillary space, not to exceed a pinhead in area, permits vision of $\frac{20}{70}$. Eyeball of normal size. Tension normal. Eyeball clear. The left pupil is occluded by several globular masses, the upper largest mass measuring about 4*mm* in diameter, the others ranging down to less than 1*mm* in diameter.

The larger masses were diaphanous to transillumination. The fundus of the eyes could not be seen, but projection was good in both eyes.

A diagnosis of the cysts of the uveal layer of the iris, with possibly broad posterior synechiæ was made. Operation was advised and consented to. The patient was sent to the New York Eye and Ear Infirmary and the left eye operated on December 3, 1913.

An incision was made in the limbus at the upper margin of the cornea above. When the aqueous escaped, the masses pressed against the cornea and were flattened. The blades of small curved clot forceps milled on the opposing surfaces were passed into the anterior chamber and an attempt made to seize the growths and to tear them from their attachments. This was only partially successful. Capsule forceps were passed without much result. De Wecker's scissors could not be used without engaging the iris. The iris at the upper margin of the pupil was now seized so as to include the attachment of two of the masses, and a liberal iridectomy performed. The operator was surprised to find that there was no deposit of pigment left on the capsule of the lens. No evidence of synechiæ of any kind. The remnants of two of the spherical

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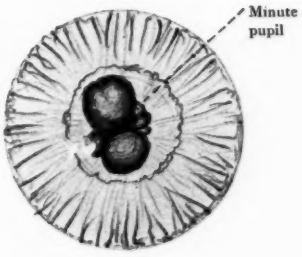
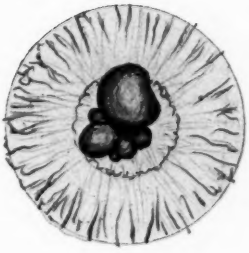
R. E.

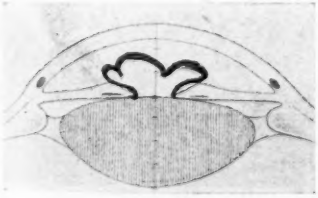
R. E.



L. E.



R. E.



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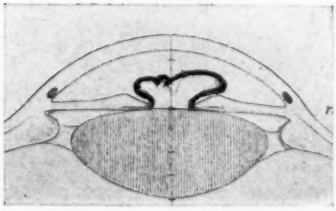

bodies were left on the lower pupillary membrane. Healing uneventful.

On December 15, 1913, the right eye was operated on. A narrow Graefe knife was entered at the limbus at the temporal side, on a level with the plane of the iris at the pupil, and an attempt was made to sever the masses at their insertion at the margin of the pupil. This was successful with two of the larger masses at the lower margin of the pupil. The knife was then withdrawn and reinserted at the limbus at the upper margin of the cornea, and an incision about 8*mm* long was made. The iris was then seized at the pupillary margin by means of the iris forceps, the place of insertion of two of the masses included, and a fairly broad iridectomy performed. Remnants of two of the masses remained in the anterior chamber and could not be removed by irrigation. These were seized by means of fine mouse-tooth forceps and withdrawn. On removing one of these masses it was found to be still partially attached to the pigmented layer of the iris, and when it came away a portion of this layer came away with it. There was but little evidence of posterior synechiæ. Some small opaque striæ were visible in the substance of the crystalline lens. Healing progressed favorably for three days, when the eye became painful and the conjunctiva chemotic. Tension slightly below normal. Atropin had no effect on the iris. The inflammation, which was non-infectious, continued a week. It was apparently favorably influenced by the salicylates internally. Healing then progressed favorably. There were no pigmented masses now visible in the eye. Vision, February 20, 1914, with the correcting glasses, is R. E., $\frac{20}{20}$—; L. E., $\frac{20}{20}$. Patient uses her eyes for clerical work without discomfort.

Microscopical Examination.—Sections of the masses that were removed were examined at the laboratory of the New York Eye and Ear Infirmary. The sections present appearances somewhat difficult of interpretation. The development of cysts in the uveal layer of the iris is very apparent. In addition there appears to have been a hypertrophy of the iris at the pupillary margin, chiefly involving the sphincter pupillæ and the tissues immediately about it. At the pupillary margin there appears to be a development of cysts by a

splitting of the pigment layer, as a pigmented layer is apparent on the iris tissues as well as forming the outer wall of the cyst. Beyond the area of the sphincter pupillæ muscle the uveal layer appears to be raised from the non-pigmented layer of the iris, to have become hypertrophied, and to have formed irregular cysts, the outer walls of which consist of the entire thickness of the uveal layer. The non-pigmented wall is formed by iris tissues, the surface of which is very uneven. The iris tissue, aside from that described, presents a fairly normal appearance, except that there is apparently an increase in the number and size of the blood-vessels. On account of the non-dilatability of the iris it is inferred that either the sphincter zone is rigid or that the dilatator pupillæ muscle is defective.

The case here reported is apparently one of the development of cysts in the pigment layer of the iris, probably congenital in origin, consequent on a slowly progressive irregular hyperplasia of the cells of this layer, and to œdema. A brief study of the literature is sufficient to convince the student that cysts of the pigment layer of the iris may be classified under different heads, namely, (1) congenital; (2) traumatic, and (3) secondary to diseases of the eye.

Congenital cystic formation in the pigment layer of the iris presents some distinctive features: (*a*) It is usually bilateral. There are some exceptions to this in the cases reported. Of the cases referred to in the accompanying bibliography, 18 in number, 2 were apparently monocular—those of Graefe (1) and Businelli (2). (*b*) The development is slowly progressive, certainly up to young adult life. (*c*) Evidence of inflammation of the iris is wanting in almost all (if not quite all) of the cases.

That the formations are cystic is evidenced by the fact that they may collapse spontaneously [Worth (17), Howe (14),], that they collapse when operative procedure is instituted (Businelli and the author), and that the microscopical examination discloses this condition (author).

Cases of this character are apparently rare. Of the authors consulted only two (Howe, Ancke) report more than one case. Those reported by Howe are the most remarkable and instructive. He raises the question of a possible relation of myopia to this condition. An analysis of the reported cases

does not disclose a sufficient preponderance of myopia to warrant such a conclusion.

It is very probable that the free approximately spherical pigmented bodies that are sometimes observed in the anterior and posterior chambers [Streatfield (6), Schneider (7), Hartridge (11), Coats (18),] are derived from cystic formation in the pigment layer of the iris of the type here described [although disk-like pigmented masses may originate from persistent fetal pupillary membrane remains, as suggested by Coats (18)]. That this is very probable is evident from the cases observed in which the spherical masses hang to the pupillary margin by a fairly broad pedicle (Howe and the author), or by a mere filament (Howe, Holmes, Businelli).

In regard to the pathology of the condition, it is well known that in certain diseased conditions of the eye, as in glaucoma or in systemic conditions, as diabetes, cysts of the pigmented layer of the iris are prone to develop, due apparently to separation of the two layers of pigmented epithelial cells by the entrance of fluid from the iris tissues. The case of Collins[1] is apparently a remarkable example of the formation of such a cyst by pressure œdema. If the fluid present in these cysts is derived from the iris it must have passed through the proximal epithelial layer. In the case here reported the entire pigmented layer, with the exception of a few scattered cells, and at the pupillary margin, appears to be lifted away from iris tissue. The iris tissue appears to be more than ordinarily vascular, and the posterior surface rough. At the pupillary margin the epithelial layers are separated. In addition it appears that the pigment layer of the iris is redundant, giving the impression of hyperplasia as well as œdema.

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REPORT OF A CASE OF DETACHMENT OF THE RETINA, OCCURRING IN A CASE OF NEURO-RETINITIS, RESTORED BY SCLERAL TREPHINING OPERATION, ASSOCIATED WITH INCISION OF THE CHOROID AND RETINA. NO RECURRENCE AFTER A PERIOD OF EIGHT MONTHS' TIME.[1]

By WALTER R. PARKER, M.D., Detroit, Michigan.

(With three charts of the field of vision in the text.)

THE case was one of double neuroretinitis of unknown origin, associated with a partial detachment of the retina down and out in the left eye, of one year duration. The sclera was trephined over the site of detachment and an incision made in the choroid and retina. The operation was followed by a free discharge of a straw-colored fluid, and a small amount of vitreous. A marked reaction followed, the whole bulbar conjunctiva becoming œdematous. After a lapse of ten days the reaction had disappeared and the retina was reattached. No recurrence after a period of eight months. Vision before operation $\frac{4}{60}$; final record $\frac{6}{12}$.

History.—The patient, H. H., male, aged 46, came to the Ophthalmic Clinic of the University of Michigan, September 23, 1913, complaining of a progressive loss of vision in the left eye which began one year previously as a crescent-shaped shadow, convexity downward, in the upper part of the visual field. There had been no trauma, no pain, nor photophobia.

The family and personal medical histories were negative.

Examination.—Vision, right eye $\frac{6}{6}$, left eye $\frac{4}{60}$, temporally. Pupillary reflexes were normal. Tension normal. No external pathology in either eye.

[1] Read before the American Ophthalmological Society, May, 1914.

Ophthalmoscopic Examination.—Right eye, some fine and reticular vitreous opacities, otherwise media clear. The physiological depression present, lamina cribrosa shows faintly. The disk slightly œdematous, scleral ring present, the choroidal ring blurred. The arterial reflex stripe is most conspicuous in the macular vessels. Arterio-venous compression with some distal dilation. The foveal reflex is present.

Left eye. Innumerable fine dust-like opacities in the

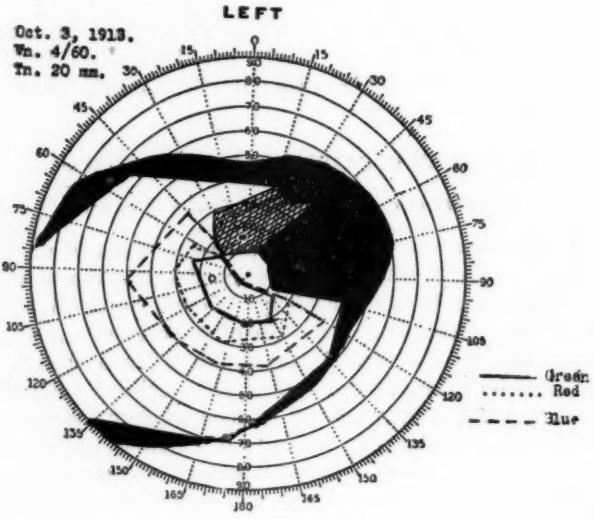


Fig. 1

vitreous, few larger and rounded, all of the same type, but variable in size. The disk is hyperæmic, physiological depression is present, lamina cribrosa faintly seen, scleral and choroidal rings blurred. The arterial reflex stripe is conspicuous. There is a silver-wire macular artery nearly developed just about the fovea. The retina about the disk is hyperæmic and swollen, whole retina œdematous. Below the fovea the retina is folded and floats free from the choroid. The detachment extends from about one disk diameter below the disk downward and outward as far as can be seen.

Visual Field.—The field (Fig. 1) showed marked contraction in the superior nasal portion.

Medical Examination.—The physical examination was

negative. Blood pressure 120, urine examination negative, except specific gravity 1007. Wassermann negative. Sinuses negative. Teeth in good condition. Tuberculin test not made.

Diagnosis.—Neuroretinitis with detachment of the retina in left eye. Cause not determined.

Operation.—October 16, 1913, a flap, including all the tissues overlying the sclera, was made down and out, and with the 1.5*mm* blade of von Hippel's trephine, an opening

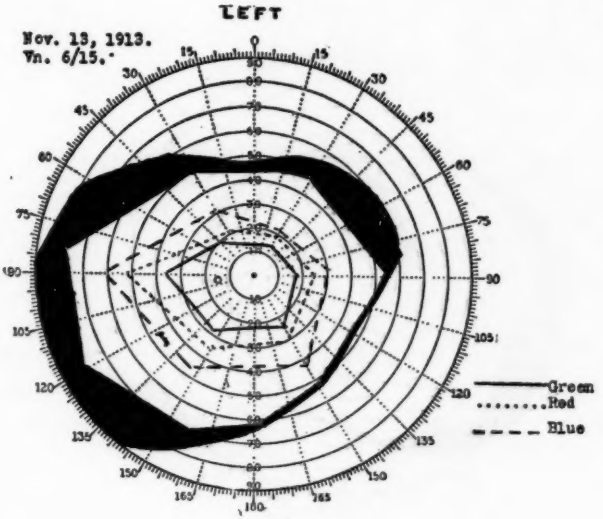


Fig. 2

was made through the sclera at a point corresponding to the retinal detachment. The scleral button was readily removed and was followed by a slight escape of fluid. The choroid and retina were incised with a cataract knife. A gush of straw-colored fluid was followed by the escape of a small amount of vitreous. Three sutures were used to hold the conjunctival flap in position.

Postoperative History.—During the night, the patient complained of some pain and the conjunctiva became very much congested, swollen, and œdematous, the chemotic conjunctiva covering the limbus completely. The eye was iced for twenty-four hours.

In five days' time the swelling and chemosis were greatly

reduced except at the site of operation, which showed bulging for five days longer, at which time the stitches were removed.

Fundus Examination made three weeks after operation.—There are many minute granular opacities in the vitreous. The whole fundus is slightly hyperæmic, the retina is somewhat œdematous. Arteriovenous compression present. The superior macular vessels have silver-wire characteristics. Very slight, if any foveal reflex; the macular region is prac-

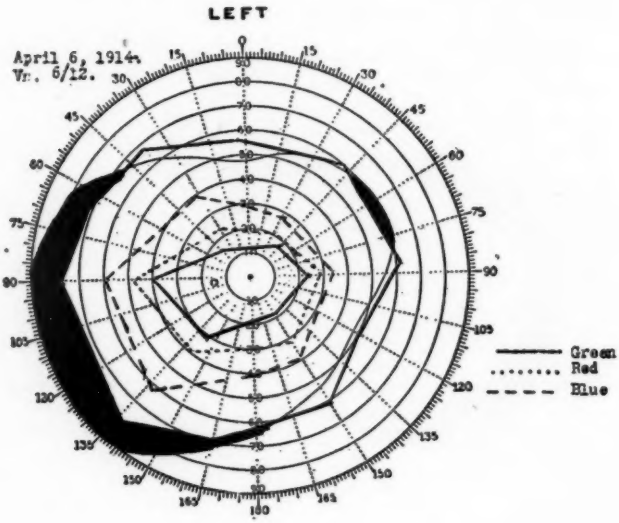


Fig. 3

tically normal except that it is slightly granular about the fovea. There is a glistening white spot and a bright annular whitish line nearly surrounding it, about 3 or 4 disk diameters temporally and about 1 disk diameter from the fovea. No area of detachment can be discovered, the retina being apparently completely reattached.

Three weeks after the operation the vision in the left eye was $\frac{6}{15}$, and the field for form and color was nearly normal in extent (Fig. 2).

Refraction: Left eye + 0.50 sphere. Tension, O.D. 20*mm* Hg., O. S. 20*mm* Hg.

The last observation, made seven months after the time of operation, showed the vision to be $\frac{6}{12}$. Tension 20*mm* Hg.

and visual field nearly normal (Fig. 3). There was no change in the fundus findings from those made three weeks after the operation. The vision had increased from $\frac{4}{60}$ to $\frac{5}{12}$.

Two other cases of detachment of the retina were treated by trephining the sclera without incising the choroid and retina. In neither case was there any improvement. As this is the first case of detachment of the retina from any cause which I have benefited in any marked degree, I am prompted to place it on record.

A NEW PROCEDURE IN CATARACT EXTRACTION. A SUBCONJUNCTIVAL-FLAP METHOD OF CAPSULOTOMY.

By HENRY W. WANDLESS, M.D., New York.

(*With three figures in the text.*)

ANY change in the technic of the orthodox cataract extraction should be approached with caution. Necessarily this field of surgery is narrow and radical changes of procedure are taken up with hesitation by all good operators. All agree, however, that the last word has not been said since cataract extraction is far from satisfactory except to a very few operators. One of the most delicate and certainly one of the most important steps in the operation is capsulotomy. A complete capsulotomy is hardly possible but a sufficient capsulotomy may be done, though this is not the rule. The writer has seen comparatively few that he would class as sufficient in the sense that the opening made in the capsule would allow an easy exit of the lens. Usually before the sclero-corneal section is completed the aqua has been lost. On its completion the iris is found to be pushed forward against the cornea by the lens and the pupil narrowed down to about two or three *mm.* An attempt at capsulotomy within this small pupillary opening is little more than a pretense. As a result of this insufficient opening in the capsule the lens must necessarily tear its way out by force of the operator's manipulations and this at a time when pressure on the globe is most undesirable.

The author maintains that in the majority of cases where the vitreous is lost it is directly due to this same pressure. Entanglements of the iris are frequent with most operators and resort must be had to an iridectomy. It would be far better for the integrity of the eye if an iridectomy were done in all

cases of extraction by the usual procedure, before an attempt is made to open the capsule, for the reason that the capsule may be slit close up to its periphery. The great number of secondary cataract operations attests the fact that the capsulotomy in each such case was insufficiently done.

For more than one hundred and seventy-five years attempts have been made to get away from the difficulties of capsulotomy and its untoward consequences by modifying the procedure. None of these has been satisfactory. In recent years Colonel Smith has apparently been successful in his extraction of the lens in its capsule, but our American ophthalmologists have not taken it up to any great extent; there seems to be something about it which deters rather than encourages one to attempt it.

To avoid the difficulties of capsulotomy, to lessen its unfavorable consequences, and to render the extraction more simple and easy, my procedure has been devised. A few years ago while discussing with the late Dr. Frederick H. Wiggin his method of closing the superpubic incision after the removal of stones from the bladder, it occurred to me that if capsulotomy could be done without the loss of aqua, a great advance in the extraction of cataracts would be gained, and the idea of closing the corneal puncture with a conjunctival flap suggested itself as a means to that end.

About the year 1740 Daviel first published and described a method of cataract extraction. Up to that time couching the lens had been generally practiced. Since then, however, the method of treating cataracts by extraction of the lens has steadily gained favor. It has undergone many changes and many improvements both as regards technic and the instruments used. As far back as 1870 Knapp advocated complete removal of the capsule. In 1872 Badal, Spencer Watson, Bribosi, E. Smith, and others advocated opening the capsule of the lens before making the incision of the cornea for the reasons expressed in my paper. They proposed entering the anterior chamber through the cornea, near the limbus, at an oblique angle. The operation did not gain favor but since that time other operators have taken it up. Bowman's needle is generally used. Haab has occasionally employed this method in juvenile cataracts and it is said to form a part of the routine

practice in the Madras Hospital. In 1874 Forster began practicing the removal of a portion of the anterior capsule. Other methods have been proposed, as peripheral capsulotomy and keratocystotomy.

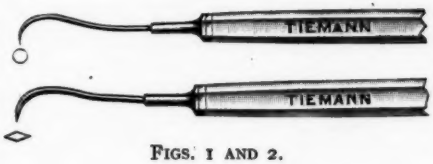
In his treatise on cataract extraction, D. Augustus Gottlieb Richter, M. & Ch.D., published in 1790, discusses capsulotomy at considerable length. He performed the operation with La Faye's cystotome, making a series of punctures in the capsule through the corneal incision. In the same treatise he mentions the fact that "Mr. Thenon cuts the capsule crosswise; Daviel makes a circular incision as to entirely disengage the middle portion; Beranger opens the capsule, entering through the corneal incision with the same knife with which he divided the cornea; Tenhaas performs the whole operation with La Faye's knife by depressing the point when it is opposite the pupil, engaging the lens, opening the capsule, and proceeds to complete the incision of the cornea; Mons. Wenzel opens the capsule in the same manner as Mr. Tenhaas, using the same knife." Thus it is seen that Mr. Tenhaas is the originator of the operation known as keratocystotomy which was later claimed by Quioc and systematized and named by Gayet. It was afterwards carried on to such an extent as to diminish the operation of cataract extraction to a single step and reducing the number of instruments to one, a cataract knife. It should be borne in mind, however, that during the lifetime of Daviel, Tenhaas, and Richter, in the eighteenth century, the fixation forceps and eye speculum were not known.

It appears that even before 1740 and up to the present time difficulties in capsulotomy have been more or less in public discussion among the profession. The parts of the operation claimed as new by the author refer especially to the manner of entering the anterior chamber, the incision of the capsule, and the instruments used.

The subject was thought over a great deal and much time lost in procrastination. A modus operandi was finally decided upon.

The eye is prepared in the usual way for cataract operations, and the instruments are the ordinary ones with the exception of the usual form of capsulotome, for which is substituted either one of the author's curved needle capsulotomes; made by Geo.

Tiemann & Co., and shown in Figs. 1 and 2. The eye is held in position with a fixation forceps in the hand of an assistant at a convenient position to meet the preferment of the operator. The author prefers to fix the eye opposite the proposed puncture. The operator stands for work on either eye behind the patient and to his left, looking diagonally across his body. The conjunctiva is picked up with a small tooth-forceps about three or four *mm* from the proposed section of the globe. The capsulotome is made to puncture the conjunctiva at this point, care being taken not to make traction on the conjunctiva away from the cornea but rather toward it. The point of the needle is passed through the conjunctiva, close up to the forceps on the side next to the cornea. The needle is rotated bringing the flat of the needle parallel with the globe. Traction is now made on the conjunctiva, toward the cornea, or the forceps may be laid aside. The needle is then passed along between the sclera and conjunctiva until the point is felt to impinge against the firm union of these two structures with the cornea, or until the point is seen entering the clear tissues of the cornea. If the forceps has not been dispensed with it may be now, and the fixation forceps taken instead, the assistant being relieved of them. The operator now holds both needle and fixation forceps. The point of the needle is held firmly in position while the handle is rotated and moved toward the line of the patient's body and the blade stands at right angles to the cornea. It is then firmly but gently passed into the anterior chamber, the pupil having been previously dilated with homatropine and cocaine. One of three forms of capsulotomy may be selected and in case of failure a fourth may be resorted to. They are shown in Fig. 3, A, B, C, and D.[1]



FIGS. 1 AND 2.

[1] Fig. 3, A, B, C, and D. The incisions in the capsule represented in this figure show them to be well within the pupillary area for purposes of clearness of illustration, but in actual practice the incisions are much more peripheral.

Form "A" was my first idea, but experience soon taught me that it was very difficult to perform. It consists of carefully describing a circular incision through the capsule, as large as may be desired, and intersecting this circle with a straight incision extending to the periphery of the lens. The latter incision is made during the withdrawal of the capsulotome.

Form "B" is comparatively easy of execution and requires few combined movements of the needle. The needle immediately engages the capsule on entering the anterior chamber and is pushed across to the opposite side, describing an arc the radius of which is about 1.5 to 2*mm*. A similar incision is made by withdrawing the needle and intersecting the first at point of beginning. A modification of this form may be executed by entering the anterior chamber from either side and swinging the needle across the pupil area, the point of entrance through the globe acting as a fulcrum; two curved incisions may thus be made, the beginning and ending being continuous and the effect being the same as in the original. The objections are that two punctures are necessary instead of one, more time is required, and the risk of leakage, if any, is doubled.

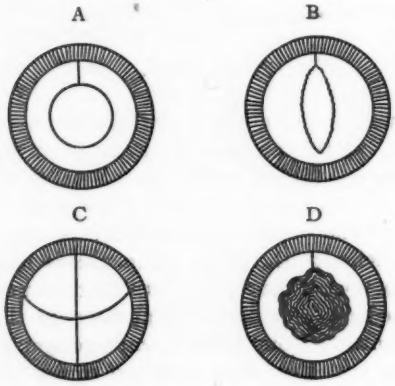


FIG. 3.

Form "C" consists of two incisions crossing each other in the center of the capsule, one being curved as the needle is swung from side to side as described in the modified technic of form "B." The needle on entering the anterior chamber is immediately carried to either side of the pupil margin, engaging the capsule, and is swung to the opposite side. The needle is then carried to the far side of the pupil and a straight cut made to the point of exit.

Form "D" does not seem to require any particular amount of skill. The needle is carried over to the center of the lens and a certain amount of the capsule and lens substance is stirred up by irregular movements; but care must be taken to intersect this broken-up area with a straight cut extending to the point of entrance as described in Form "A." In fact this form "D" is nothing more nor less than the ordinary discission operation, differing from it only in the manner of approach, and may be resorted to at any stage of any of the other forms of capsulotomy. In withdrawing the needle it is important to retrace exactly the maneuver in entering, but the action must be well directed and quick, while an assistant makes firm but gentle pressure on the conjunctiva over the point of entrance with a spatula, which pressure must be continued for one or two minutes after the needle has been removed, thus preventing the loss of aqua.

One feature concerning this new procedure which will commend itself very strongly, especially to a beginner, is the fact that it may be tried in its experimental stages on young subjects with cataracts, where discission is desirable. In fact extraction on young subjects may be abandoned at any moment and discission performed without the least additional risk. The lens in many cases practically slips out of its capsule by the time the sclerocorneal section can be completed.

The author believes that the reason more lenses do not present themselves for delivery immediately following the section of the globe is because the capsule has not been sufficiently opened. The needle should have a shank which is uniform and well fills the opening made, and should be not more than $\frac{3}{4}mm$ in diameter and of sufficient strength to pass through without breaking.

In any adult case in which excessive aqua has been lost, the extraction may be postponed, if in the opinion of the operator the tension of the eye has been so reduced as to render the section of the globe too difficult. When the anterior chamber has refilled (from six to twelve hours) the extraction operation proceeds.

It was my first intention to make a truly conjunctival flap such as many operators make at the completion of the section of the globe before attempting to introduce the capsulotome.

This flap is replaced in position on completion of the cataract operation. In this way freer movement of the capsulotome is obtained but the danger of loss of aqua is greater. The flap may be dissected up with a pair of scissors, or better still, by introducing a Graefe cataract knife on the flat at the sclero-corneal margin and cutting the flap as broad and as long as is desired toward the posterior pole of the globe.

CONCLUSIONS

Cases should be selected.

A shallow anterior chamber renders the operation more difficult to perform, and if very shallow the operation should not be attempted.

My original idea of a knife blade was abandoned as it was demonstrated that a round, sharp, needle point is quite as efficient, the capsule not requiring a knife blade to cut it as is usually supposed. There is little danger of the capsule peeling.

The manner of approaching the capsule is largely a matter of individual preference.

Unnecessary movements of the needle while it is in the anterior chamber should be avoided.

There is little or no danger of penetrating the vitreous if ordinary care is exercised.

Form "B" is the one of selection, in which case the capsulotome used may have more of the form of a lance, Fig. 2, as it is to cut only in the forward and backward movements.

DEPARTMENT ON CONSERVATION OF VISION

Edited by DR. GEORGE S. DERBY and MR. HENRY COPLEY GREENE, BOSTON.

IN contrast with the brilliant work for the Conservation of Vision accomplished by a private organization in Kentucky,[1] it is interesting to observe what a State Commission can accomplish with the help of private organizations and physicians, not only directly, but indirectly in stimulating local authorities. The Ohio State Commission for the Blind—the first Commission explicitly empowered to undertake work for the Prevention of Blindness—has furnished many striking examples of progressive State activity. Through the kindness of their Field Secretary, Miss Marion A. Campbell, we publish the following account[2] of:

Organized Nursing for the Prevention of Blindness, as Carried on by the Ohio State Commission for the Blind.

The plan of work for the Prevention of Blindness devised by the Ohio Commission for the Blind includes an Advisory Board of Ophthalmologists and a sub-committee of physicians representing various groups of counties, covering all sections of the State. The Advisory Board is responsible for policies and methods of work. To them, and to the sub-committee, are referred the cases reported to the office of the Commission, from their respective localities, and needing diagnosis or treatment. Nurses in every case are sent with the patient,

[1] *Cf.* Department on Conservation of Vision, ARCHIVES OF OPHTHALMOLOGY, May, 1914.

[2] For a more extended report on the work, *cf.* "Organized Work for the Prevention of Blindness" by Marion A. Campbell, *The Ohio State Medical Journal*, February and March, 1914.

and home treatment is supervised or hospital treatment secured.

Fundamental in the Commission's plan are:

(1) The service of a visiting nurse in co-operating with the physician in securing proper home or hospital care for the patient.

(2) The regulation and close supervision of the practice of midwives.

SPECIAL NURSES

Under the Commission's plan the special nurse is but a specialized social-service nurse, her peculiarity being that she is not limited to service for any particular hospital or physician, but seeks to co-operate with all in following up such cases of critical eye conditions as, neglected or delayed in treatment, may result in loss of sight.

Nursing service under this plan has been established in Cleveland, where it has been taken over by the City Health Board, in Columbus, Toledo, Akron, and Youngstown, and in some rural communities.

A brief review of this work in Cleveland and Columbus will serve to suggest the aim of the Commission in its State-wide work,—the adoption of a similar plan of special eye nursing for the prevention of Ophthalmia Neonatorum in other large centers of the State. This will allow the Commission to withdraw its nurses gradually for service in the rural communities, where the need is as great in degree as in the larger centers.

THE CLEVELAND CAMPAIGN

The work in Cleveland was initiated by a private organization—the Society for the Blind. In January, 1911, it organized a special committee for the prevention of blindness, composed of representatives of eight organizations concerned with the care of the city's poor and with the public health. The society employed a visiting nurse to work under the direction of this committee in the investigation of midwife practice. All midwives practising unlawfully or failing to report sore

eyes in babies were prosecuted, and extensive newspaper publicity was given these prosecutions. The Secretary of the Board of Health added Ophthalmia Neonatorum to the list of communicable diseases to be reported promptly by physicians; and it soon became necessary to assign a nurse to follow up reports by both physicians and midwives. The Babies' Dispensary and Hospital placed one of its nurses at the call of the Board of Health for such service. At the end of three months the increasing volume of work required the services of a second nurse. After another three months, when the Board of Health organized its Department of Child Hygiene, it took over the two nurses doing special eye-nursing for infants and children under three years.

The first six months of this service shows the following statistics: Total number of cases, 148. Gonorrheal Conjunctivitis, 12; Purulent Conjunctivitis, 21; Simple Catarrhal, 90; Normal, 21; Blind in both eyes, 1; Blind in one eye, 1; Impaired Sight, 1. During the two and one-half years of this service over 1000 cases have been dealt with; and of these more than one-third were serious.

As the services of the special eye nurses became better known in the city, requests came to the Board of Health for similar service for adults. In March, 1912, the Commission made its first appointment of a special nurse to work with the Cleveland Board of Health in adult eye work and inspection of midwife practice. The Commission supported this nurse in Cleveland until July, 1913, when she was taken over by the Board of Health; and because the extensive practice of midwivery in Cleveland demanded it, the Commission appointed a nurse to be Inspector of Midwife Practice for Northern Ohio, with headquarters at the Cleveland Board of Health.

At the present time the Cleveland Board of Health employs three special eye nurses—two for infant cases and one for adult cases. The two in infant service carry an average of fifty cases each a month, covering eye conditions in children under three years. There have been reported to the adult eye nurse during her two years of service 641 cases. She is now carrying 199 open cases; of these the physician's diagnoses show: Trachoma, 43; Corneal Ulcer, 44; Interstitial Keratitis, 11; Phlyctenular Keratitis, 25; Strabismus, 29; Blepharitis,

11; Cataract, 10; Tuberculous Process, 3; Follicular Ulcers, 3; Purulent Conjunctivitis, 2; Dacryocystitis, 4; and one each of Ptosis, "Rheumatic Condition," Neuritis of Optic Nerve, Injury, and Specific Retinitis.

Statistics covering the midwife inspection show figures which justify the service which the Commission is furnishing. They have history cards for 250, and each month adds new names to the list. Many of these are known to be practicing without the necessary credentials from the State Medical Board. They are carefully watched and are prosecuted for offenses.

During the last two years the Commission has prosecuted in Cleveland, 19 midwives; 12 for failure to report sore eyes, and 7 for unlawful practice. Five of the 12 were, at the same time, prosecuted for unlawful practice. As a result of the vigorous campaign against them, the better qualified midwives have organized, and are attempting to raise the standard of their profession. They are co-operating with the Midwife Inspector in bringing evidence against offenders.

An amendment, secured by the State Medical Board of the 1913 session of the Legislature, provides that no applicant for examination in midwifery shall be accepted by the Board unless she has taken a regular medical course equivalent to that required of applicants for examination to practice medicine or surgery, and has graduated from a school of midwifery in good standing as defined by the Medical Board.

This amendment has this year reduced greatly the number of midwives added annually to the registered list. In 1911, 81 candidates presented themselves for examination to practice midwifery; of these 44 were admitted to practice. In 1912, 72 candidates appeared, and of these 49 were admitted to practice. In 1913, at the January examination, 30 were considering applications for examinations; but under the new amendment could not qualify. Only three passed and were admitted to practice.

With this result in the first year of its operation, we may justly predict a safer and more easily regulated midwife practice.

For those midwives who hold certificates and may reasonably look forward to a period of years of practice, the Commission

has considered ways and means for preventing Ophthalmia Neonatorum. In all centers where nurses are stationed and midwives are located, the nurse meets each week with the midwives; distributes a prophylactic, and instructs them in its use. In one center the nurse and an Ophthalmologist, who is a member of the Visiting Nurse Board, have organized a clinic for the training of midwives in proper care of infants' eyes. In another, many of the midwives have reported their births at once to the nurse, with a request for her to inspect the eyes. Two such requests resulted in the nurse finding well-developed cases of streptococcus infection.

THE WORK IN COLUMBUS

In May, 1912, the Commission called together representatives of the various social-medical organizations in Columbus as a special committee for the Prevention of Blindness, and with this committee as an advisory body, inaugurated eye-nursing service. The District Nursing Association entered cordially into the plan, assigning for this service one of its most experienced nurses, the support of such service to be borne by the Commission during the period of development.

The City Health Board, through its representative on the committee, promptly made the following ruling:

"Every physician, midwife, or person having charge of an infant, shall report to the Department of Health, within twenty-four hours, the existence of any suspicious inflammation or unnatural discharge occurring in the eyes of such infant.

"Every physician, midwife, or person having charge of any child, shall report to the Department of Health, within twenty-four hours, the existence of any purulent Ophthalmia in the eyes of such child."

All reports filed at the Board of Health were at once referred to the nurse, she in turn reporting to the physician for directions in the home care of the patient.

The number and kind of eye cases referred in the first six months demonstrated the need for its continuance. From June 1 to December 31, 1912, 28 cases of infants were referred to eye nurses, among a total of 186 cases. Diagnosis: Ophthalmia, 20; Conjunctivitis, 32; Cellulitis, 1; Congenital

Hemorrhage, 1; Corneal Ulcer, 5; Granular Lids, 1; Interstitial Keratitis, 6; Tumor of Brain, 2; Refraction Cases, 16; Ectropion with Conjunctivitis, 1; Totally Blind, 6; Hemorrhage, 2; Pink Eye, 1; Trachoma, 6; Anterior Polar Cataract, 1; Blind (one eye), 10; Phthisis Bulbi, 1; Cataract, 4; Infected Tear Duct, 1; Glaucoma, 3; Syphilitic Retinitis, 1; Corneal Ulcer and Trachoma, 1; Opacity from Ulcer, 1; Strabismus, 5; Traumatic Cataract, 1; Specific Ophthalmia, 2; "Sore Eyes"—(physicians' signature to diagnosis), 11; Granular Conjunctivitis, 1; Deviation of Eyes, 2; Tumor of Eyelid, 1; Iritis, 1; Uncertain, 31.

1166 calls were made, with the following results: Discharged after good recovery, infants (Ophthalmia Neonatorum), 36, adults, 57; corrected, 20; improved, 6; unimproved, 8; under treatment, 47; hopelessly blind, 8; died, 1. Total, 186.

EYE-NURSING SERVICE IN RURAL DISTRICTS

In July, 1913, the Commission secured the part-time services of a visiting nurse to investigate conditions resulting in blindness in some of our rural communities. Statistics for this work are incomplete, as but part time has been given to it, and many delays are experienced in securing treatment for patients at distances from centers. The figures available show 75 communities visited, 241 patients seen, and 600 calls made. Many cases of impending blindness have unquestionably been treated and partial sight saved.

A summary of the diagnoses nearly duplicates those in the larger centers as cited in this report.

Not only is there as great a need for nursing service for eye conditions in rural communities but, if anything, a greater need, inasmuch as there are few, if any, such social organizations as those to which patients may apply in all the larger cities. The ready response which this work has met in every community has led the Advisory Board to consider extending it to cover the State.

ERRATUM

The Committee for the Prevention of Blindness of the State of New York was, through inadvertence, omitted from the

list of Organizations in the May number of the ARCHIVES (p. 266).

Its address is Room 508, 130 East 22nd Street, New York City.

The Committee was organized by the Russell Sage Foundation, and appointed by the New York Association for the Blind upon request.

REPORT OF THE PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY OF THE ROYAL SOCIETY OF MEDICINE.

By Mr. C. DEVEREUX MARSHALL.

The usual meeting of the Section was held on Wednesday, May 6th, under the presidency of Sir Anderson Critchett, Bt., C.V.O.

Mr. Basil Lang showed a stereoscopic X-ray photograph of a case of **traumatic enophthalmos;** also a bottle specimen showing an early stage in intraocular suppuration.

Mr. Booklis showed a **congenital cataract,** probably of the Coppoc type.

Mr. R. Affleck Greeves read a paper entitled **Pathological observations on the filtration angle in some glaucoma cases.** He spoke of cases of glaucoma in which there was no closure of the filtration angle by a peripheral anterior synechia. The cases described in the paper resolved themselves into three groups. In the first were those in which an irido-cyclitis was, or had been, present. He described the invasion of the spaces of Fontana by granulation tissue containing capillary vessels, this tissue ultimately forming a solid mass of scar tissue, with which the pectinate ligament became incorporated. In the second group, the tissues of the pectinate ligament were unaltered, but the spaces were blocked by large swollen cells, apparently of a phagocytic nature. In the third group the spaces of Fontana were open, but simple retinal detachment was present. In these latter cases the author suggested the rise of tension and the retinal detachment were due to the same cause, namely, an alteration in the composition of the intraocular fluid. Mr. Greeves also commented on secondary glaucoma with intraocular growth, and said he thought that in

some cases an inflammatory element might be present. The contribution was illustrated with micro-photographs, shown by means of the epidiascope.

Lieut.-Col. HERBERT, I.M.S., read a paper on **The ideal glaucoma incision.** He said the section most suitable for the relief of glaucoma was a limited subconjunctival incision in the transverse vertical plane, a millimeter behind the limbus, the conjunctiva at this point being only loosely attached. A sufficiently near approach to this section could be obtained by puncture and counter-puncture with a very narrow tapering knife. Though sufficiently peripheral superficially to facilitate diffusion of aqueous backward under the conjunctiva, it reached the deep surface of the cornea well in front of the root of the iris. Although making only a limited opening into the anterior chamber, the incision was superficially long, so widening the area of diffusion. Thus the tendency to localized vesicular change from filtration through the conjunctiva was reduced to a minimum. It was this change which had been mainly responsible for the late infections reported after trephining. Permanent filtration through this incision was secured, in chronic glaucoma, if the wound were kept open 24 hours. One method of doing this was to fix a gilded rod of metal by sutures so that it lay in the incision though upon the conjunctiva, depressing the latter into the scleral groove. The method possessed the great advantage of never emptying the anterior chamber, and during the operation there was only slight leakage. The operation, therefore, seemed to be one of the safest imaginable. Apart from the feature of reducing the danger of late infection, the risk of intraocular hemorrhage was lessened, and interference was reduced to the minimum. Ordinarily, there was no need to interfere with the iris in any way. The details, however, required yet to be more fully worked out. It was necessary (1) to avoid unnecessary displacement of the conjunctiva, which tended to localize filtration, and (2) to provide sufficiently free leakage of aqueous in congestive and absolute glaucomas.

Mr. N. BISHOP HARMAN made a communication on **A variable flap operation for chronic glaucoma.** He devised the operation for the purpose of allowing the surgeon some latitude in the grading of the effects intended to be produced. Most of

the methods now used were very rigid—the same sort of thing was done for every sort of eye and every texture of sclera, whether thin and soft, or hard and tough to the point of being gristly. After an initial scleral section with the keratome, the modified twin scissors devised by the author were used to cut a corneo-scleral flap. The blades of these scissors had been so modified that they cut a U-shaped piece free, except for a narrow stalk of attachment to the cornea. This flap was freely movable; the ordinary tension of the eye lifted it above the general level of the sclera. It was so mobile that it could be twisted over on itself; then it was found to lift the conjunctiva, and form a sort of inclusion tissue keeping open the scleral fistula. If the sclera were unusually tough, the flap could be removed with the touch of a knife. He favored the operation as securing the desired variation, and the twisting of the flap in particular promised to be very effective.

Mr. W. G. LAWS read a paper entitled **Herbert's small-flap operation for glaucoma.** He said he was inclined to return to the original type of the operation, and make lateral cuts with the knife, for scissors must crush and injure the tissues before dividing them, and in glaucomatous eyes tissues already lowered in vitality were being dealt with. For that reason he did not apply antiseptics to the conjunctival sac; he did not even douche it before operating; he simply cleansed the edges of the lids with 1 in 3000 perchloride. Out of 140 cases, he had had intraocular hemorrhage in only three at the time of the operation. These three he detailed. He would not apply one form of operation in all glaucoma cases indiscriminately. He preferred to do the open-wedge operation in long-standing glaucoma cases, particularly when the angle of the anterior chamber was shallow.

Mr. A. L. WHITEHEAD (Leeds) pointed out that, after the glaucoma operation, fistulous tracts were set up from the anterior chamber towards the spaces of Fontana, lined with epithelium which was probably derived from that in the anterior chamber. When failure occurred from the operation, it seemed to be due to a fibrous-tissue formation, which closed the operation wound, whatever the operator did. He narrated some cases bearing out his contention.

The Business and Ordinary Meetings of the Section on

Ophthalmology were held on Wednesday, June 10, 1914, Sir ANDERSON CRITCHETT, Bart., C.V.O., President of the Section, in the Chair.

The retiring President, Sir ANDERSON CRITCHETT, was, on the motion of Mr. HIGGENS, seconded by Mr. PERCY FLEMMING, accorded a very warm vote of thanks for his services in the Chair from the formation of the Section, reference being made by the speakers to the great services rendered to ophthalmology, by his father and himself. Sir Anderson Critchett suitably replied. Thanks were also tendered to Mr. Treacher Collins on his retirement from the Council, and to Mr. Herbert Parsons as Senior Honorary Secretary.

Mr. HAROLD WHALE showed a case of **West's intranasal operation for dacryocystitis.** Mr. ERNEST CLARKE asked as to the degree of permanence of the result, and whether any cases had been done a sufficient time to permit of this being known. If the effect was lasting it seemed an admirable method of short circuiting. Mr. LESLIE PATON, in discussing the case, reminded members of cases shown at the Ophthalmological Congress last April by Mr. Graham and himself in which a modified West's operation was performed. The results in those cases had lasted about three months satisfactorily and were still good. He described Mr. Graham's method of ensuring the exact superposition of the two holes, in the mucous membrane of the nose and that in the mucous membrane of the sac. Mr. W. LANG also discussed the case.

Mr. R. AFFLECK GREEVES showed a case of **supernumerary punctum lacrimale and canaliculus.** There were four canaliculi, and many of these cases complained of epiphora, but in some the epiphora had nothing to do with the congenital abnormalities found. The condition was discovered accidentally and therefore cases might be more numerous than they were supposed to be.

Mr. RAYNER D. BATTEN showed a case of **double detachment of the retina in a boy with functional albuminuria.** The boy was in apparent good health, and there was no œdema or heart trouble. Mr. H. L. EASON discussed the case from the point of view of the possibility of the detached retina going back, and mentioned a case of his own in which that happened.

Mr. E. ERSKINE HENDERSON showed the drawing of a case

of **a hole in the optic disk,** and Mr. CHARLES WRAY exhibited cases of multiple ruptures of choroid between macula and disk with $\frac{6}{9}$ vision; also keratoconus treated by Snell's cautery; and a case of traumatic discoloration of lens.

Mr. HOLMES SPICER showed an interesting case of **hydatids in the anterior chamber.** The first indication of an abnormality in the eye occurred at the age of three months, and early in the case he thought it was a glioma. Later posterior synechiæ developed and there was a clear cyst floating in the anterior chamber, looking like a soap bubble. It would be necessary to remove the eye. He promised a full pathological report at a later meeting.

Mr. MAYOU showed a case of **optic neuritis** with symmetrical loss in the lower fields in diabetes. The patient had had a radical operation done on both antra. Mr. PATON expressed the view that it was neuritis due to accessory sinus disease, and not associated with diabetes.

Mr. EASON described a case in which a piece of steel lodged in the vitreous and had remained there seven weeks without causing a growth of fibrous tissue over it and without reducing vision below $\frac{6}{9}$. There was, however, a slight discoloration of the iris, which did not react to light. He asked for advice on the matter, expressing his view that it was best to leave it alone at present. With this the President agreed.

Mr. A. HUGH THOMPSON showed a case of **detachment of retinal band due to a steel foreign body.** It was extracted by means of a giant magnet. Later detachment occurred; but it got better, and then relapsed, and later he had complete loss of vision.

Mr. CHARLES WRAY read a paper entitled **Operative treatment of keratoconus.** He said that to wait until thinning of the cone took place was as dangerous as the initial softening, and needed justification in view of the efficiency and safety of operative treatment by means of the cautery in the early stages. When the diagnosis was certain and the correcting cylinder over 6 D., active treatment was urged, especially if the patient was over 25 years of age and the astigmatism was progressive. Patients with conus should be seen frequently, because there might at any time be a dangerous development. He deprecated attempting to do too much at one sitting; in

the subevoluted forms excessive cauterization was likely to produce severe irregular astigmatism. It was undesirable to destroy or seriously injure Bowman's membrane, and he found Snell's cautery, at almost a black heat, was very satisfactory. So far, ophthalmic surgeons had confined their efforts in these cases to the surgical treatment of the fully evoluted cone, which he likened to the policy of deferring the operation for radical cure of hernia until the tumor had incapacitated the patient. Owing to the thinning, very little burning at the summit of the cornea in this condition was apt to result in perforation. When the apex was thin and the pulsation very pronounced it might be worth while to perforate and thus destroy the center. An unsatisfactory feature was the formation of a deeply-seated translucent star-shaped figure at the seat of puncture, consisting of folds of Descemet's membrane. This might later necessitate a sphincterectomy or optical iridectomy. For very advanced cases a special procedure was mostly needed for the summit of the cone. The paper was supplemented by a list of cases and results, and drawings.

The paper was discussed by the President, Mr. W. LANG, and Mr. LESLIE PATON, the latter describing a case which he operated upon by Sir Anderson Critchett's method five years ago, with an eventual good result. He only proceeded a certain distance in with the cautery, finishing with the Graefe knife, and that method in his hands yielded the best results, though he had tried Mr. Wray's method.

Mr. E. ERSKINE HENDERSON read a communication entitled **Rupture of optic nerve at lamina cribrosa.** The case was that of a boy, æt. 15, who was struck in the face by a brick falling from a cart. The blow on the lid did not render him unconscious. There was a large contused wound on the eyebrow nd upper eyelid. Only the outer part of the iris was visible; there was no perception of light. A fortnight later the anterior chamber and vitreous had cleared sufficiently to allow of a view of the fundus. The lower half of the disk was represented by a hole. The inferior vessels had been torn across and the lens was partially dislocated. There was considerable enophthalmos. Only twelve similar cases appeared to have been recorded, since Hiss published one in 1856.

REPORT OF PROCEEDINGS OF THE SECTION ON OPHTHALMOLOGY OF THE NEW YORK ACADEMY OF MEDICINE.

By GEORGE H. BELL, M.D., Secretary.

H. H. TYSON, M.D., CHAIRMAN. MONDAY EVENING, APRIL 20, 1914.

Dr. L. W. CALLAN presented a case of **bilateral conical cornea** with improvement in vision following an Elliott trephining operation. The patient, a young man aged 25, was examined by Dr. Wendell Reber, of Philadelphia, in March, 1912. His refraction then was as follows: R.+ 1.00 +5.00 axis 180° = $\frac{5}{12}$; L.+ 1.00 + 5.00 axis 175° = $\frac{5}{12}$. Both corneæ presented a distinct keratoconus. Under atropin on March 20, 1914, sight was: R. + 1.00 + 7.50 axis 145° = $\frac{8}{9}$; L. + 4.00 + 10.00 axis 170° = $\frac{5}{12}$. Ten days later the vision with the lenses was the same. The conical cornea was most marked in the left eye. Tension normal in both eyes. Tonometer could not be used. The left eye was operated upon on March 3, 1914, at the New York Eye and Ear Infirmary. Elliott's trephining was performed at the limbus with a 1½*mm* trephine. A very small buttonhole was made in the iris near its attachment. One week after operation tension was minus, and under atropin sight was: L.+ 8.00 axis 175° = $\frac{8}{9}$. On April 20, 1914, L. —1.00 + 9.00 axis 180° = $\frac{8}{9}$.

Dr. CHAMBERS wanted to know if the operation was not done pretty far back.

Dr. CALLAN said it looks so, but he doesn't think it is. He is sure that it is anterior to the root of the iris.

Dr. LINN EMERSON presented a case of **double rupture of the choroid** in a young man aged 25. A bottle struck him in the right eye producing a double rupture of the choroid. His field

shows a marked defect corresponding to the two ruptures. He has no central scotoma.

Dr. MARSH wanted to know if the defect corresponded to the area of rupture.

Dr. EMERSON said, yes, that the patient had two separate defects in the field but no central scotoma.

Dr. EMERSON presented some pneumatic typewriting keys, which he recommends to his typewriting patients.

Dr. MARSH presented a case of **optic atrophy of obscure origin.** Boy, aged 12 years. Two and a half years ago noticed right vision blurred, succeeding violent frontal headaches for two weeks previous, coming every other day. No vomiting or any other symptoms. No trouble with left eye. No sore throat. No medicine for his trouble. Personal and family history otherwise negative. Vision in right eye, fingers at 2 feet, left eye, $\frac{20}{20}$. Refractive error trifling. Heart, lungs, kidneys, and abdomen normal. Wassermann negative. Pirquet slightly plus; pupils unequal, right being slightly larger, but both react normally, although the left more actively. Paresis right internal rectus. No sensory disturbances. No muscular weakness or atrophy. Reflexes normal throughout, no tremors, no asynergia, no diadochocemia, no vesical or rectal disturbances. Nasal sinuses negative by direct examination and transillumination. X-ray plate negative. The ophthalmoscopic picture remained about the same, also vision. Right vision improved at first to $\frac{8}{200}$, then fell back again.

Dr. MCDANNALD reported a case of **sursumvergens.** Man, age 31. Sursumvergens due to absence of inferior rectus muscle of the left eye. Operation, tenotomy of superior rectus, with splitting of external and internal recti and reattaching lower section of muscle to the globe. Patient has been improved.

Dr. SCHOENBERG and E. BIRCHELL presented some microscopical and macroscopical sections of various types of experimental ocular tuberculosis in rabbits. A full report of this work will be incorporated in a paper and appear in a later issue of the ARCHIVES.

Dr. A. E. DAVIS said he was much interested to hear this report. The reaction in these cases he thought was very rapid.

Dr. TYSON and Dr. SCHOENBERG presented a paper on changes in blood and aqueous humor produced by **methyl alcohol inhalation.** The paper will appear in full in the ARCHIVES.

Dr. LEWIS ZIEGLER, of Philadelphia, in discussing Dr. Tyson and Dr. Schoenberg's paper said he would like to add one case to the list of unfortunates who inhale methyl alcohol. This patient for one hour each day wandered into a cement factory where they used wood alcohol. His vision gradually declined. He stopped going into the factory and his vision began to improve slowly.

Dr. TYSON said that 30 cases had been reported recently and applied for relief at a society on the East Side.

Dr. CLAIBORNE read a report of a case of **persistent ring scotoma** following repeated and prolonged gazing at a furnace fire. Young man, aged 36, complained in January, 1913, about a dark ring he had noticed some time, before his left eye. He was a mechanical engineer and had been experimenting for 9 months burning various kinds of fuel in a furnace. He was accustomed to look at the fire through a round door. About 6 months after he started these experiments he noticed a dark ring. He then used euphos lenses and found they relieved him for a while. The ring scotoma alarmed him, although he could see nearly as well through the ring as with the other eye. Vision, R $\frac{20}{20}$ with + .50; L. $\frac{20}{20}$ with + .50. Pupil reaction normal. Optic nerves on both sides remarkably red, veins enlarged. Dr. Claiborne presented two fields, one taken by himself and one by the patient. He thinks it is well, when patients are intelligent, to let them draw their own fields, particularly in cases of scotomata. Patient was under observation for several months. It is now 12 months since the scotoma was first noticed, and there has been no change in it. Dr. Claiborne thinks there will be none, and he believes the lesion to be situated in the retina of the left eye and not in the cerebral cortex.

Adolf Jess examined a number of patients following the eclipse of the sun in 1912. Vision in a number of cases was considerably diminished. He observed 36 cases and in 26 there was a partial or total ring scotoma.

In Dr. Claiborne's case the peripheric field of vision is some-

what restricted, which is consistent with the retinal exhaustion due to prolonged gazing at a fierce light. It will be remembered that the patient looked directly into a circular fierce light, and afterwards observed the fleeting central scotoma which one notices after looking at the uncovered disk of the sun. One would naturally expect from this a central scotoma and not a ring scotoma, yet a ring scotoma occurred.

Dr. S. LEWIS ZIEGLER, of Philadephia, (by invitation) read a paper on **capsulo-muscular advancement with partial resection,** which was illustrated by lantern slides. After a brief résumé of the technic of various operations, he described his original operation on the muscle alone, devised about 20 years ago, and later the modification he has since adopted by which the capsule is included in the suture.

In performing the operation of capsulo-muscular advancement a vertical incision is made in the conjunctiva near the limbus and the tendon and muscle raised on two tenotomy hooks introduced from below upward and put slightly on a stretch. One end of a double armed suture is then inserted through the lower edge of the muscle from before backward and the same suture repeated behind the first, thus making a marginal whip-stitch. The thread is then passed partly across the top of the muscle and a similar double stitch is duplicated on the upper margin of the muscle.

Each needle is now carried backward in a parallel line beneath Tenon's capsule and made to emerge on the conjunctival surface. A small wedge or V-shaped piece is then cut away from each peripheral third of the muscle, above and below, with punch or scissors, leaving a central strand of fibers intact.

The needles are now entered through the conjunctiva at the upper and lower extremities of the wound, passed firmly into the sclera for solid anchorage and brought out near the limbus, where the suture is tied after the toilet of the wound has been performed. This leaves a knot and two parallel lines of thread exposed on the conjunctival surface, thus holding all the tissue flat against the sclera. The good judgment of the operator must decide how much capsule shall be engaged and just how tight the graduated suture shall be drawn. As a rule, the squint should be slightly over-corrected. If indicated, certain

measures should also be taken to weaken the pull of the antagonist.

Dr. MARPLE congratulated Dr. Ziegler on the beautiful drawings used in illustrating the paper.

Dr. WEEKS wanted to know if there is any trouble in removing the stitches. He said he did the operation practiced by Dr. Knapp for years, but abandoned it for others.

Dr. VALK said he was interested in Dr. Ziegler's paper. He said he had always used catgut sutures, and had done a vast number of operations. He thinks it well to cut the muscle as Dr. Ziegler does. He thinks the technic very beautiful.

Dr. ZIEGLER, in reply to Dr. Weeks, said, it is not hard to take the sutures out. The capsule and conjunctiva come down on top of the muscle and there is no buckling of the muscle.

In reply to Dr. Valk, he said he is always afraid of catgut letting go or absorbing too soon.

QUARTERLY REVIEW OF THE PROGRESS OF OPHTHALMOLOGY.

By H. KOELLNER, Berlin; W. KRAUSS, Marburg; R. KÜMMELL, Erlangen; W. LOEHLEIN, Greifswald; H. MEYER, Brandenburg; W. NICOLAI, Berlin; H. PAGENSTECHER, Strassburg; K. WESSELY, Würzburg; and M. WOLFRUM, Leipsic, with the Assistance of Drs. ALLING, New Haven; CALDERARO, Rome; CAUSÉ, Mayence; DANIS, Brussels; GILBERT, Munich; GROENHOLM, Helsingfors; v. POPPEN, St. Petersburg; TREUTLER, Dresden; and VISSER, Amsterdam.

FOURTH QUARTER, 1913—*Continued.*

Edited by Dr. MATTHIAS LANCKTON FOSTER, New Rochelle.

XI.—LACRIMAL ORGANS—*Continued.*

61. PETERS. **Concerning the occurrence of pneumococci in the conjunctival sac after conservative treatment of suppuration in the sac.** *Klin. Monatsbl. f. Augenheilkunde*, December, 1913, p. 766.

PETERS (61, **Pneumococci in conjunctival sacs after conservative treatment of dacryocystitis**) confirms the findings of Moennich and adheres to the conservative treatment of dacryocystitis. He extirpates the sac only when such treatment has not proved successful at the end of two or three weeks, or when the operation is indicated for other reasons. When relapses occur he first tries conservative treatment again and if this fails, extirpates. He never irrigates.

XII.—ORBITS, EXOPHTHALMOS, ACCESSORY SINUSES.

64. DUPUY-DUTEMPS and MAWAS. **Three cases of angioma of the orbit.** *Annale d'oculistique*, cl., p. 393.

65. IDE, C. F. **Report of a case of sarcoma of the orbit.** *Ophthalmic Record*, November, 1913.

66. KALB. **Hemiatrophia facialis.** *Med. Klinik*, No. 45, p. 1871.

67. LAGRANGE. **Angioma of the orbit.** *Arch. d'ophtalm.*, xxxiii., p. 722.

68. MARKBREITER, J. **Rhinological importance of the enlargement of the blind spot.** *Meeting of the Hungarian Ophth. Soc. in Budapest.*

69. PETERS. **The involvement of the accessory sinuses of the nose in suppuration of the lacrimal sac.** *Klin. Monatsbl. f. Augenheilk.*, December, p. 767.

70. POSEY, WILLIAM C. **Two unusual orbital conditions.** *Trans. American Ophthalmological Society*, 1913.

71. WERNER, FR. **Symmetrical gummata of the orbit.** *Sammlung wissenschaftlicher Arbeiten*, No. 12.

LAGRANGE (67, **Angioma of the orbit**) reports a case of this nature met with in a woman 26 years old, who was otherwise healthy. The tumor was congenital, had grown slowly until the twentieth year of her life, and began to grow rapidly a few months before she entered the clinic. At this time the eye, which had good vision and was otherwise normal, had been displaced upward until it was *2cm* higher than the other. The roundish growth could be felt beneath the œdematous conjunctiva in the lower part of the orbit. On account of the rapid increase in size of the tumor the clinical diagnosis was made of a dermoid, but the histological examination after it had been extirpated with the help of Kroenlein's operation, showed it to be a fibromatous angioma, which was filled with numerous lymphomatous islands, mast cells, plasma cells, fat and macrophagous cells with free and other pigment, was completely encapsuled, and was unaltered by inflammation. He emphasizes the usefulness of Kroenlein's operation in such a case as this, as by its aid it was possible to remove the tumor and spare the ophthalmic ganglion and to preserve the normal functional and motor condition of the eye. CAUSÉ.

DUPUY-DUTEMPS and MAWAS (64, **Angioma of the orbit**) report three cases of angioma of the orbit which were very similar histologically, though they presented quite different clinical symptoms. All three were in the upper part of the orbit and were firmly attached to the soft parts. In the first case the eye was lost from hemorrhage after electrolytic treatment. In the second a deep hemorrhage caused a sudden protrusion of the eyeball, which went back after several days. In the third, a woman 64 years old, a tumor of the breast was removed at the same time as one the size of a nut from the orbit. All three tumors were extremely vascular, and contained plasma cells, mast cells, and smooth muscle fibers. CAUSÉ.

KALB (66, **Hemiatrophia facialis**) reports a case of facial hemiatrophy. All of the soft parts, including the orbital fat, and the bones were involved; the scalp was very movable and the hair had fallen out to a great extent. No pareses of the muscles, or disturbances of the cranial nerves or of sensibility were present. Trigeminal neuralgia had been present for four years, especially in the first branch, and the atrophy had begun a year and a half before, without the presence of any traumatism or infectious disease.

POSEY (70, **Two unusual orbital conditions**) saw a case with a swelling in the lower inner part of the orbit which showed crepitation and disappeared under pressure. It was said to have followed probing of the lacrimal duct and subsequent bleeding into the lower lid. The mass was excised and proved to be largely cystic. It was probably not a true tumor, but from the history it would appear that air was forced from time to time into the tissue through a rupture in the sac, carrying with it minute foreign bodies which could cause inflammatory reaction. The other case was one in which a year after extirpation of the lacrimal sac there appeared a large mucocele over the site of the operation. This proved to be a mucocele of the anterior ethmoidal cells which had pushed forward.

ALLING.

IDE (65, **Sarcoma of the orbit**) saw a child less than a year old with exophthalmos. The child had fallen a few days before, striking against the edge of a stove. The Kroenlein operation was performed, and a soft pulpy mass which bled excessively was found behind the globe and extending into the antrum. As extirpation seemed impossible, the wound was sewed up. The child died a month after the fall.

ALLING.

In a patient, 51 years old, seen by WERNER (71, **Symmetrical gummata of the orbit**), a tumor developed within fourteen days in the lower outer part of the left orbit, and protruded therefrom with a smooth surface, immovable at its base and not adherent to the skin. The eye itself showed no pathological condition. Aside from a positive Wassermann there was nothing in the general condition or the history that was indicative of syphilis. The tumor was diagnosed as a fibrosarcoma and immediately extirpated. Histologically it proved

to be an inflammatory granulation tumor. Seven months later a thickening of the tissues of the right upper lid appeared and quickly spread to the lower lid. Because of the positive Wassermann and the histological condition of the tumor that had been removed before, and as there was nothing indicative of tuberculosis, the diagnosis of a gumma was made and treatment instituted. After four injections of salvarsan the tumor had completely disappeared.

MARKBREITER (68, **Rhinological importance of enlargement of the blind spot**) contests the assumption that a differentiation between suppurations in the anterior and the posterior accessory sinuses can be made through the enlargement of the blind spot, basing his opinion on the examination of a hundred cases of inflammation of the accessory sinuses. The same enlargements of the blind spot may be observed in anterior sinus trouble as in posterior. As an early symptom on the same side it is diagnostically valuable, for he finds a more frequent early symptom than central scotoma. V. LIEBERMANN.

The involvement of the accessory sinuses in dacryocystitis seems to be more common than has been supposed. PETERS (69, **Involvement of the accessory sinuses in dacryocystitis**) was able to demonstrate changes in the sinuses in ten out of twenty-seven cases by the X-ray, although they could be detected by a rhinoscopic examination in only five. He advises an X-ray examination whenever there is any suspicion of an empyema in an accessory sinus, though in general he prefers a conservative treatment. If healing does not take place the patient is again examined rhinoscopically, and if there is any suspicion of accessory sinus trouble by the X-ray. The anterior ethmoid cells are frequently to blame for the maintenance of the suppuration.

XIII.—CONJUNCTIVA.

72. BERNEAUD. **A case of Parinaud's conjunctivitis.** *Klin. Monatsbl. f. Augenheilkunde*, 1913, p. 764.

73. BRUNS, H. D. **Ophthalmia artefacta.** *Trans. Amer. Ophth. Soc.*, 1913.

74. COLOMBO. **Contribution to the study of hyaline degeneration of the conjunctiva.** *Annali di Ottalm.*, 1913, No. 1.

75. CUENOD and PENEL. **Vaccine therapy of gonococcal conjunctivitis.** *Annales d'oculistique*, cl., p. 337.

76. KUHNT. **Treatment of trachoma.** *Zeitsch f. Augenheilk.*, XXX., 6, p. 481.

77. MAGGI. **Contribution to the study of epithelial neoplasms of the limbus.** *Annali di Ottalm.*, 1913.

78. SCHERESCHEWSKY, J. W. **Trachoma among the Indians.** *Jour. A. M. A.*, September 27, 1913.

79. SPRATT, C. N. **Primary lues of the bulbar conjunctiva.** *Ibid.*, September 27, 1913.

80. STEINER. **Pigment spots and pigment tumors of the conjunctiva in different races.** *Klin. Monatsbl. f. Augenheilkunde*, 1913, p. 534.

81. TYSON, H. H. **A case of congenital apron of the palpebral conjunctiva.** *Trans. American Ophthalmological Society*, 1913.

82. WILDER, W. H. **An unusual case of staphylococcus conjunctivitis.** *Ibid.*, 1913.

Only ten cases similar to the one reported by TYSON (81, **Congenital apron of the palpebral conjunctiva**) are on record. On everting the upper lid the tarsal portion of the conjunctiva presented an appearance as if a fold of conjunctiva, extending nearly the entire length of the lid, had been pinched with a pair of forceps, lifted up, and then pressed back against the center of the tarsus, and had adhered to it along the upper edge of the fold. ALLING.

BERNEAUD (72, **Parinaud's conjunctivitis**) describes a case of Parinaud's conjunctivitis in which tuberculosis was excluded as the etiological factor. Histological examination of the conjunctiva showed no signs of a follicular inflammation. The microörganisms described by Verhoeff could not be demonstrated.

Although the occurrence of pigmented nævi in the conjunctiva of Caucasians is rare, and is associated with the danger of degenerating into malignant growths, STEINER (80, **Pigment spots and pigment tumors of the conjunctiva in different races**) finds that the conjunctiva of the Javanese always contains pigment, which is often collected together in the form of spots or nævi, but seldom gives rise to malignant tumors. He thinks the race is paramount in judging the importance of conjunctival nævi, and that while they should be removed as soon as possible in Caucasians, this is by no means true in the Malay race.

MAGGI (77, **Epithelial neoplasms of the limbus**) removed from the above the inner side of the limbus of the right eye of

a girl 11 years old a neoplasm as large as a grain of corn, which was flesh colored, hard, had a wavy surface, small ulcerations, and was surrounded by a marked conjunctival injection. The histological examination showed the tumor to be an epithelioma, although the age of the patient and the clinical appearance had led it to be supposed that the growth was benign. CALDERARO.

COLOMBO (74, **Hyaline degeneration of the conjunctiva**) removed from the bulbar conjunctiva of both eyes of a woman 33 years old a tumor as large as a pea, which was fibrous, easily movable, and painless. The rest of the conjunctiva and eye were healthy. Several recurrences took place after extirpation. Microscopic examination revealed in the middle of the adenoid tissue a little piece of degenerated, homogeneous, refractive substance which was insoluble in alcohol, ether, and dilute acids, and gave the color reaction of hyalin. The changes could be looked upon as localized forms of proliferation of the bulbar conjunctiva of adenoid nature. This degeneration was independent of trachoma or any other local or general disease. CALDERARO.

BRUNS (73, **Ophthalmia artefacta**) relates the case of a girl of 17 of scrofulous type who came with ulcerations on the palpebral and bulbar conjunctiva showing a deep black staining of the base. Similar areas of necrosis appeared later on the skin. Dense corneal opacities and symblepharon developed, and two operations were performed. The lesions seemed not to have been syphilitic or tuberculous, and he was forced to the conclusion that the injuries were self-inflicted, but in just what manner was undetermined. ALLING.

WILDER'S (82, **Staphylococcus conjunctivitis**) case was a tuberculous woman who had a recurrent conjunctivitis characterized by the presence of a peculiar greenish exudate. The only germ found was the staphylococcus aureus. The exudate contained no mineral substances, and no fungus organisms could be discovered. It would seem as though the coloring matter must have originated from some extraneous source. ALLING.

SPRATT (79, **Primary lues of the conjunctiva**) has found twenty-one cases reported of chancre of the bulbar conjunctiva, and of these only three were found at the limbus. His case

was in a woman of 37, who became infected from a syphilitic infant. The lesion was at the limbus, and consisted of a slightly raised area, the center of which was occupied by a dirty yellow, necrotic mass with deep sloping edges. The preauricular gland was enlarged. Scrapings showed spirochætæ. Later only a corneal scar remained. ALLING.

CUENOD and PENEL (75, **Vaccine therapy of gonococcal conjunctivitis**) used vaccine treatment in twenty-six cases of gonorrheal conjunctivitis and obtained excellent results.

CAUSÉ.

KUHNT (76, **Treatment of trachoma**) recommends in the early stage, if there is much secretion, nitrate of silver, if there is not, copper. In the gelatinous stage he expresses the gelatinous granules with his expressor. Massage of the conjunctiva with cotton wet with sublimate, 1:2000, is useful, and so is the galvanic cautery. When the cornea is secondarily involved, even though there is no cicatrization and tendency to contract, and when there is much infiltration and thickening of the tarsus, he recommends operation, either the simple or the combined excision, or the enucleation of the tarsus. The latter is the only procedure indicated in the cicatricial stage. For inveterate pannus he employs the same operations, and for the most refractory cases jequirity.

SCHERESCHEWSKY (78, **Trachoma among the Indians**) states that the commission appointed by Congress examined about one-eighth of the 322,715 Indian population of the United States, and out of the 39,231 examined trachoma was found in 8940 individuals. The general percentage was 22.7%, but it varied greatly in different sections of the country, and even in parts of the same reservation. The prevalence of trachoma in Indian boarding-schools is very noticeable, and due to the conditions of institutional life. There is less to be found in the day schools, and least among the reservation Indians above and below school age. The opening of the reservations to white settlers and absorption of the Indians by the white population are fraught with danger to the future inhabitants of these sections. ALLING.

XIV.—CORNEA AND SCLERA.

83. CHANCE, B. **Degeneration of the corneæ of a man and his adult son.** *Transactions of the American Ophthalmological Society*, 1913.

84. DEAN, L. W. **Report of a case of primary sarcoma of the cornea.** *Annals of Ophthalmology*, October, 1913.

85. DERBY, G. S., and WALKER, C. B. **Interstitial keratitis of luetic origin.** *Trans. of the American Ophthalmological Society*, 1913.

86. GUGLIANETTI. **Epibulbar epithelioma that recurred in spite of treatment with the X-rays.** *Arch. di Ottalm.*, July–August, 1913.

87. JAKOBI. **A case of ulcer of the cornea caused by the bacillus pyocyaneus.** *Inaug. Diss.*, Heidelberg, 1913.

88. MATOLESE. **Clinical contribution to the study of epithelial dystrophy of the cornea.** *Annali di Ottalm.*, 1913, No. 4.

89. MUSZYNSKI. **Cholesterin crystals in the cornea.** *Zentralbl. f. prakt. Augenheilkunde*, 1913, p. 321.

90. PUSCARIN. **Two new cases of nodular opacity of the cornea (Groenouw's disease).** *Arch. d'ophtalm.*, xxxiii., p. 758.

91. SCHUR. **Clinical observations of the effect of ethylhydrocuprein on pneumococcal ulcers of the cornea.** *Klin. Monatsbl. f. Augenh.*, 1913, p. 469.

92. WEEKERS. **Thermotherapy of progressive ulcers of the cornea.** *Arch. d'ophtalmologie*, xxxiii., p. 681.

CHANCE. (83, **Degeneration of the corneæ of a man and his adult son**) found in each of the four corneæ examined a large faint disk covering the central two thirds of the corneal area. The opacities consisted of dotted groups arranged in stellate lines and situated below Bowman's membrane. There were also in the center cystic formations which projected above the surface. There was no evidence of syphilis or tuberculosis found. These cases are known as familial nodular degeneration of the cornea. ALLING.

PUSCARIN (90, **Nodular opacity of the cornea**) reports two more cases of Groenouw's disease met with in men about forty years of age. No signs of general disease were present in either. The Wassermann test and the tuberculin reaction were negative in both. The process could not be influenced by clinical measures. The opacity of the cornea was so dense in one case that an optical iridectomy was performed, but without benefit. A portion of the most opaque portion of the cornea was removed in this case for histological investigation. The changes found were identical with those described by others: atrophy of the epithelium with vacuolization of the cell nuclei, heaps of granular masses beneath the epithelium, destruction of Bowman's membrane, laceration of the corneal lamellæ with broadening of the interstitial spaces, and granu-

lar (colloid?) transformation of the fixed connective tissue cells. Puscarin concludes that the nodular opacities of the cornea constitute a well-characterized disease, both as regards the clinical aspect and the microscopical changes. CAUSÉ.

MUSZYNSKI (89, **Cholesterin crystals in the cornea**) found the outer lower quadrants of the cornea of a patient 80 years old, who had suffered repeatedly from keratitis and iridocyclitis, dull, yellowish, and containing lines of glittering particles. He ascribes as the cause of these cholesterin crystals the frequently recurring inflammations of the cornea and the fatty degeneration of the products of the inflammation.

MATOLESE (88, **Epithelial dystrophy of the cornea**) reports the case of a man 53 years old, who had had for six months pericorneal injection of his left eye, with a cornea that was slightly opaque everywhere except in its peripheral zone. The anterior chamber was normal, the pupillary reaction slow, the sensibility of the cornea abolished, the tension normal, the vision counting fingers at 30*cm*. In spite of all treatment the disease grew worse, and at the end of four months the cornea had little blebs containing transparent fluid. The disease was therefore epithelial. CALDERARO.

JAKOBI (87, **Ulcer of the cornea caused by the bacillus pyocyaneus**) describes a case of this nature and has collated twenty-seven from literature. The keratitis excited by this bacillus is commonly malignant and usually presents the picture of an atypical hypopyon keratitis. The treatment recommended in benign cases is compresses, sublimate, and pilocarpine; in malignant cases cauterization of the ulcer and Sæmisch's operation. In comparison with ectogenous infection endogenous is extremely rare.

SCHUR (91, **Ethylhydrocuprein in pneumococcal ulcers of the cornea**) has used this remedy in eight cases. He instills a 1 or 2% aqueous solution, and also applies bits of cotton wet with it to the ulcer for a few minutes daily, until a slight grayish cloudiness appears immediately about the ulcer. The results were very good. In a short time the progressive wall disappeared and the ulcer soon cleared up. The scars left were more delicate than those left after other methods of treatment.

WEEKERS (92, **Thermotherapy of progressive ulcers of the cornea**) brings the red-hot platinum needle of the galvanic

cautery close to the surface of the cornea without touching it, so as to affect particularly the progressive margin of the ulcer. This he does for one minute and repeats the application two or three times in a sitting. Short intervals must always be allowed for winking on account of the evaporation. A second sitting is only needed exceptionally; as a rule a good result is obtained from a single treatment. The scars left are remarkably delicate. The statistics of forty-seven cases treated in this way show considerably better results than cauterization. Weekers thinks that this method is also a protective against perforation. CAUSÉ.

GUGLIANETTI'S (86, **Epibulbar epithelioma that recurred in spite of treatment with the X-rays**) case was one of epibulbar epithelioma that resembled papilloma in its development. After extirpation the growth recurred, was treated radiotherapeutically, apparently disappeared, and recurred again, manifesting its malignancy and enveloping the eyeball. The examination of the extirpated eyeball showed that the tumor on the cornea had the structure of a papilloma with abundant epithelial proliferation, while its appearance about the eyeball was that of an epithelioma with a tendency to penetrate into the eye through the limbus. The X-ray treatment had caused inflammatory symptoms of the outer segment of the globe associated with pain, but not affecting the vision or the visual field. No degeneration was found in the retina or the optic nerve, but in the iris and the ciliary processes there was atrophy of the stroma with vacuolar degeneration and thickening of the vessel walls. In another case of epithelioma of the limbus the X-ray treatment did no good and the eye had to be enucleated. CALDERARO.

DEAN (84, **Sarcoma of the cornea**) found a brown, vascular tumor growing on the surface of the cornea near its center. It was about 5*mm* in diameter and 1½*mm* in height. The eye was enucleated and the microscope showed the tumor to be on top of Bowman's membrane, except in one place at the center, where the substantia propria was infiltrated. The corneal epithelium at the edges slightly overlapped. The principal cells were large, round or oval, a few being spindle-shaped, and some pigmented. The tumor probably originated in the superficial layers of the cornea. ALLING.

DERBY and WALKER (85, **Interstitial keratitis of luetic origin**) treated six cases with serum from patients who had been given injections of salvarsan. There was no reaction and all the subjective symptoms seemed to improve, but perhaps not more rapidly than under ordinary treatment.

ALLING.

XV.—IRIS AND PUPILS.

93. COATS, GEORGE. **Infarction of the posterior ciliary arteries.** *Ophthalmoscope*, December, 1913.

94. FUCHS. **Nævus pigmentosus and nævus vasculosus of the iris.** *Archiv f. Ophthalmologie*, lxxxvi., 1, p. 155.

95. GUIBERT. **The part played by gastrointestinal intoxication in iritis.** *La clinique ophtalm.*, xix., p. 554.

96. LAVEN. **Primary sarcoma of the iris.** *Klin. Monatsbl. f. Augenh.*, 1913, ii., p. 493.

97. MURALT. **The nervous and psychical disturbances in pulmonary tuberculosis.** *Medizinische Klinik*, 1913, p. 1814.

98. ROCHON-DUVIGNEAUD and HEITZ. **The evolution of pupillary trouble in tabetics.** *R. neurol.*, 1913, No. 3.

99. TRUC. **Biiridectomy, or combined superior and inferior iridectomy in adherent cataract from chronic uveitis.** *Revue générale d'ophtalmologie*, xxxii., p. 529.

COATS'S (93, **Infarction of the posterior ciliary arteries**) patient was a man 40 years old, who had had an attack of iridocyclitis with increased tension. The eye remained quiet for two years, but was lost through an infected ulcer, enucleation following. The examination pathologically showed a white area near the nerve head which consisted of a wedge of necrosis in the inner layers of the sclera; marked degenerative changes were present, but with little sign of inflammation in the choroid or retina. The explanation of these findings seems to be that the necrosis was due to a cutting off of the blood supply. An inflammation severe enough to cause this degree of necrosis would have been associated with deeper cellular infiltration and matting together of the choroid and retina.

GROUT.

FUCHS (94, **Nævus pigmentosus and nævus vasculosus of the iris**) describes first the anterior limiting layer, its division into two lamellæ, an anterior homogeneous, and a posterior rich in nuclei, but the arrangement varies so that the entire anterior limiting layer presents great diversities. The origin

of the pigment is difficult to determine. Pigmented nævi, occurring usually in the clear iris, vary in their content of pigment, which is absent at first and increases until they are heavily pigmented. The anterior surface is smooth, the posterior never to be distinguished sharply from the stroma of the iris. Pigmented nævi are physiological, while the vascular are pathological. The original article should be read concerning the formation of the vessels in the latter. The angioma of the iris is a teleangiectasis, an increase of vessels with thickening of their walls. Simple hæmangiomata, or simple new formations of vessels, have also been observed.

After some remarks concerning the rarity of primary sarcoma of the iris LAVEN (96, **Primary sarcoma of the iris**) reports a new case which he examined microscopically. It was a circular melanosarcoma which started from the stroma of the iris, and was met with in a girl 12 years old.

TRUC (99, **Biiridectomy in adherent cataract from chronic uveitis**) recommends after a severe chronic iridocyclitis that has resulted in occlusion of the pupil, adherent cataract, and a tendency to glaucoma, to perform a double iridectomy. He first makes a broad iridectomy above; then after an interval he makes just as broad an iridectomy below and extracts the cataract at the same time. Under these conditions the extraction of the lens must be performed very carefully.

CAUSÉ.

GUIBERT (95, **Gastrointestinal intoxication and iritis**) regards gastrointestinal infection as a common cause of the so-called idiopathic or rheumatic iritis. He has observed three such cases in which recurrences took place repeatedly after the ordinary treatment, but ceased after proper regulation of the diet and the administration of milk ferments. CAUSÉ.

ROCHON-DUVIGNEAUD and HEITZ (98, **Evolution of pupillary trouble in tabetics**) reëxamined sixteen tabetics after the lapse of seven years and found that the pupillary disturbances had changed. The dilation of the pupils had generally increased, the irregularities in form decreased. The reaction to light may be preserved for a long time if it does not disappear early. The reaction to convergence may be retained by persons who have become blind from optic atrophy.

Among the nervous disturbances met with in tuberculosis

MURALT (97, **Nervous and psychical disturbances in pulmonary tuberculosis**) mentions finding a difference in the pupils in about 50%, a symptom that may be of importance in the differential diagnosis as it appears early The more dilated pupil is usually on the diseased, or the more diseased side. The cause is to be sought in a local irritation of the sympathetic due to inflammatory processes in the apex of the lung. This symptom may be constant, may pass away, or may go and come. When it is present alone its tuberculous origin can be assumed only with very great reservation.

XVI.—LENS.

100. DALENCOUR. **Medical treatment of cataract.** *La clin. ophtalm.*, xix., p. 543.

101. DOR. **Medical treatment of cataract.** *Ibid.*, p. 621.

102. ISAMBERT. **New operation for the extraction of the crystalline lens.** *Annales d'oculistique*, cl., p. 393.

103. LAMB, R. S. **Cataract extraction with conjunctival bridge.** *Ophthalmic Record*, November, 1913.

104. MEYER-STEINEG. **Non-operative treatment of senile cataract.** *Wochenschr. f. Ther. u. Hyg. d. Auges*, 1913, No. 46.

DOR (101, **Medical treatment of cataract**) recommends a 2% solution of sodium iodide and calcium chloride with which to bathe the eyes once or twice a day for from twenty to thirty minutes. He has devised a special bath for this purpose. The treatment must be carried out for months, often for years. The maintenance of the status quo is the rule, though considerable improvements of vision are very frequently to be observed. He has used this method for ten years. CAUSÉ.

DALENCOUR (100, **Medical treatment of cataract**) recommends the instillation several times a day of a ½% solution of potassium iodide, with a bath of the eye twice a day for twenty minutes in a 1% mixture of potassium iodide and calcium chloride; later a subconjunctival injection twice a week of twenty drops of a mercurial solution with salt; and finally subconjunctival injections of enesol in the same way. CAUSÉ.

MEYER-STEINEG (104, **Non-operative treatment of senile cataract**) uses ½% solution of sodium iodide either alone or

combined with ½% of dionin, instilled by the patient himself, while the physician instills a 2% solution of dionin every eight or ten days. Iodine is also given internally, alkaline water is ordered for drinking, and every week the patient is sweated with aspirin. The result appears after about a month, and consists in the absorption of the commencing opacities, and maintaining or improving the vision. Although his experience is confined to twenty-five cases, he believes that something can be done in this way for many cases.

LAMB (103, **Cataract extraction with conjunctival bridge**) makes a sclerocorneal incision in the usual way, but does not cut through the conjunctival flap. He is able to make the iridectomy and capsulotomy by the side of the bridge. The advantages claimed are more rapid healing and less danger of prolapse of vitreous or iris. ALLING.

ISAMBERT (102, **New operation to extract the lens**) has tested this operation only on rabbits, but proposes to try it on human beings. He introduces the needle of a hypodermic syringe into the vitreous back of the posterior pole of the lens, makes the section and the discission of the lens in the usual way, and then slowly injects a few drops of water into the vitreous so as to drive the lens first into the anterior chamber and then out of the wound. CAUSÉ.

XVII.—VITREOUS AND CHOROID.

105. MARQUEZ. **Prepapillary arterial cord penetrating into the vitreous.** *Arch. d'ophtalm.*, xxxiii., p. 631.

106. RUTTEN. **Retrocession of a panophthalmitis.** *Société belge d'ophtalmologie*, November, 1913.

107. SALUS. **Angioma of the choroid.** *Zeitschr. f. Augenh.*, Oct., p. 317.

MARQUEZ (105, **Prepapillary arterial cord in the vitreous**) observed in a woman 22 years old with divergent strabismus an arterial loop that protruded in spiral windings into the vitreous. Its length as estimated in the inverted image was about *2cm*, in the upright image nearly *3cm*. On compression of the eye an arterial pulse was to be seen distinctly in the loop together with a wave-like movement. The vision of the eye was reduced to ⅛. CAUSÉ.

RUTTEN (106, **Retrocession of a panophthalmitis**) saw a panophthalmitis with opacity of the lens caused by a penetrat-

ing wound with a piece of iron. Recovery followed injections of diphtheria serum, the actual cautery, applications of iodine, inunctions of mercury, and the administration of potassium iodide. DANIS.

SALUS (107, **Angioma of the choroid**) saw a case of angioma of the choroid in a girl 20 years old, which was interesting because it contained spaces that were filled not only by blood, but also by lymph. There was marked cystoid degeneration of the retina in the vicinity of the tumor, while detachment was present only immediately about it and had increased clinically but very slowly. Adhesions had taken place between the retina and the subjacent tissue without signs of inflammation, and there was a growth of connective tissue with formation of bone upon the tumor.

XVIII.—GLAUCOMA.

108. CONSTANTINESCO. **Late infection after trephining for glaucoma.** *La clinique ophtalm.*, xix., p. 689.

109. CRAMER. **Late infection after Elliott's operation.** *Klin. Monatsbl. f. Augenheilkunde*, December, p. 771.

110. ELLIOTT, R. H. **Trephining in glaucoma, acute and chronic; Miscellanea.** *Ophthalmoscope*, September and October, 1913.

111. HEINE. **The treatment of glaucoma.** *Klin. Monatsbl. f. Augenheilkunde*, December, 1913, p. 759.

112. PADERSTEIN. **Technique and indications for Elliott's operation.** *Berliner ophthalm. Gesellsch.*, October 25, 1913.

113. ROENNE. **Pathology of simple glaucoma.** *Klin. Monatsbl. f. Augenheilk.*, October-November, 1913, p. 505.

114. SULZER and AYRIGNAC. **The nutritive changes in persons with glaucoma.** *Annales d'oculistique*, cl., p. 245.

115. ZENTMAYER, WILLIAM. **Hydrophthalmos. With a histological report of two cases, one of which presented a congenital coloboma.** *Jour. A. M. A.*, September 27, 1913.

SULZER and AYRIGNAC (114, **Nutritive changes in persons with glaucoma**) made a systematic investigation of the metabolism of their patients suffering with glaucoma and instituted exact comparisons between primary and secondary glaucoma and optic atrophy combined with excavation. They found characteristic metabolic disturbances throughout in primary glaucoma, which expressed themselves chiefly in a disturbance of the activity of the liver and kidneys, and a constant diminution of the utilization of albumin. There was a certain

under nutrition with intestinal irregularity. These metabolic anomalies are not met with exclusively in patients with glaucoma, they rather form one of the symptoms of arthritism; for the outbreak of a glaucoma only an ocular predisposition is necessary, which is often difficult to fathom. By systematic measurements of the tension of persons with irregular functions of the liver and kidneys one may readily detect considerable fluctuations in the intraocular tension even when no objective or subjective symptoms of glaucoma are present. The measures necessary for the metabolic disturbances in these men also regulate the intraocular tension. The regulation of the nutrition obviates the diathetic predisposition to glaucoma, while the local predisposition must be met by operation.

CAUSÉ.

ELLIOTT (110, **Trephining in glaucoma, acute and chronic**) believes that trephining is the operation of choice for cases of acute as well as chronic glaucoma, as it is easier, safer, and the results are more satisfactory. Before making a diagnosis of glaucoma a most thorough examination is to be carried out. In cases where there is any doubt the pupil may be dilated with homatropine to secure a better view of the fundus, providing a myotic is instilled after the examination. In regard to the influence of various subconjunctival injections on intraocular tension little can be said in their favor. On the contrary troublesome adhesions are formed which interfere with the dissection of the conjunctiva and splitting of the cornea. The size of the opening in the sclera should be about 1 to 1.5*mm* in diameter; there is little danger of closure providing no inflammation follows. In cases of so-called "quiet iritis" following trephining, where there is a tendency to the formation of posterior synechiæ, atropine may be safely used. Some of the causes of failure after trephining, which are mentioned, are dislocation of the lens or vitreous towards the trephine hole; prolapse of the uveal tissue into the trephine hole; blocking of the trephine hole by a proliferation of connective tissue.

GROUT.

PADERSTEIN (112, **Technique and indications for Elliott's operation**) recommends to apply the trephine obliquely in order to make sure the opening of the anterior chamber. In order to avoid a plunge of the trephine into the eye, or, when the

instrument is handled carefully, the loss of too much time, he uses a trephine with a very narrow stop ring. In one case of chronic inflammatory glaucoma with very high tension the anterior chamber failed to be opened and the iridectomy to be performed, although the trephine hole was in the right place, because of an extensive adhesion of the root of the iris to the posterior surface of the cornea. Except in such rare cases as this a correctly performed trephining is an easy, sure, and painless procedure to open the sinus of the anterior chamber. How far it may be without danger must be determined in the future from the statistics of late infection. ADAM.

CONSTANTINESCO (108, **Late infection after trephining**) reports the case of a patient 59 years old who was operated on with an excellent result, a small trephine hole, a broad iridectomy, and a perfectly covering conjunctival flap, and was discharged with faultless tension and a broad, brawny conjunctival cushion. Four months later he returned with a grave infection which had appeared without known cause. The previously black trephine hole was yellow with pus. The galvanic cautery was applied, and the ordinary measures were energetically employed, but the eye atrophied. Suppuration was found in the anterior ethmoid cells of which the patient was not aware, and this possibly gave rise to the infection.

CAUSÉ.

As rapid suppuration generally follows the rupture of an ectatic cicatrix CRAMER (109, **Late infection after trephining**) is of the opinion that late infection after Elliott's operation takes place in this way in only a part of the cases. Iridocyclitis may take place without any local change at the site of operation. He saw in an old case of glaucoma a purulent iridocyclitis set in some six months after trephining, although the place of the operation was perfectly intact. The tension was elevated again. The hypopyon was evacuated and the tension reduced once more by another trephining.

HEINE (111, **Treatment of glaucoma**) performed cyclodialysis alone on 79 out of 103 glaucomatous eyes belonging to 77 patients. The operation was performed once in 69, twice in 9, and three times in 1. No improvement was obtained in 7, only a transient improvement in 23, permanent reduction of tension in 34 apparently after a short observation, in

26 after a long observation. Of 32 cases observed for more than nine months only 6 remained without permanent result. Other operative procedures were employed in 24 eyes; in 8 a cyclodialysis was followed by iridectomy, with benefit in 4, in 11 it was followed by trephining, sclerotomy, and iridectomy. Five cases were finally not influenced. Heine does not operate until after a myotic and careful general treatment has failed. The late infections after Elliott's operation cause him to hesitate.

In ROENNE'S (113, **Pathology of simple glaucoma**) case of glaucoma simplex of both eyes that had run a relatively slow course, it is notable that the sinus of the anterior chamber was wide open. The trabeculæ were superficially sclerosed, but not so as to render filtration impossible. There were no signs of inflammation. The membranes bordering the sinus all appeared bulged forward. The papilla was excavated. While the good vision of the left eye corresponded to the well-preserved papillomacular bundle, no considerable disturbance in the periphery could be demonstrated in the visual field in spite of an extensive atrophy of the peripheral fibers. The conditions in the right eye were similar.

ZENTMAYER (115, **Hydrophthalmos**) by analysing answers to inquiries which he made of various surgeons finds that iridectomy has given fair results to 42% and poor results to 58% of those who employed it for treatment of this disease. Sclerotomy gave fair results to 28% and poor to 72% of operators using it. Paracentesis was unsatisfactory in 100%. Sclerectomy gave satisfactory results to 40%, encouraging to 20%, and unsatisfactory to 40%. Myotics were on the whole unsatisfactory. The Elliott operation seems to be the best. The study of two enucleated eyes confirms the accepted view that hydrophthalmos is due to absence or incomplete development of Schlemm's canal, and that the presence of connective tissue in the iris angle is probably a contributing factor.

ALLING.

XIX.—SYMPATHETIC OPHTHALMIA.

116. DEUTSCHMANN, FRANZ. **The pathogenesis of sympathetic ophthalmitis.** *Ophthalmoscope*, November, 1913.

117. MELLER. **Spontaneous sympathetic inflammation.** *Zeitschrift f. Augenheilkunde*, XXX., 5, p. 379.

DEUTSCHMANN (116, **Pathogenesis of sympathetic ophthalmitis**) says in conclusion: "1. I have succeeded by inoculation with particles taken from the choroid of a human eye affected with sympathetic ophthalmia in producing genuine sympathetic ophthalmia in monkeys and rabbits. 2. I believe that the exciting cause of sympathetic ophthalmia is a Gram-positive diplococcus; possibly a modified sarcina. 3. The second eye becomes diseased when the bacteria succeed in passing from the first eye into the lymph channels of the first optic nerve, past the optic chiasm, and through the lymph spaces of the second nerve into the orbit. 4. The course of the bacteria passing from the eye into the optic lymph spaces, and vice versa, is a twofold one; either direct from the choroid into the intervaginal space, or along the anterior ciliary vessels from the eyeball, around it, within the musculature of the orbit, and eventually back of the eye along the central vessels into the spaces of the optic nerve, and vice versa. 5. The chronic inflammatory changes in the meninges consist of circumscribed foci and cause no general symptoms." GROUT.

MELLER (117, **Spontaneous sympathetic inflammation**) reports two cases of spontaneous uveitis, the microscopical findings in both of which were very like those present in sympathetic ophthalmia.

XX.—RETINA.

118. COATS. **Occlusion of the central vein of the retina.** *Archiv f. Ophthalmologie*, lxxxvi., p. 34.

119. DARIER. **Results of the treatment of detached retina.** *La clinique ophtalm.*, xix., p. 611.

120. GINZBERG. **Vascular tumor of the retina.** *Berl. ophthalm. Gesellsch.*, October 25, 1913.

121. GRADLE, H. S. **A hitherto undescribed anomaly of the macular retina.** *Ophthalmic Record*, October, 1913.

122. OLIVER, GEORGE H. **Hyaline bodies at the optic disk in a case of retinitis pigmentosa.** *Ophthalmoscope*, December, 1913.

123. TRANTAS. **Ophthalmoscopic lesions of the vitreous in glioma of the retina.** *Arch d'ophtalmologie*, xxxiii., p. 732.

124. WILLIAMS, C. **Hole in the disk.** *Annals of Ophthalm.*, October, 1913.

125. ZANI, DESIDERIO. **Another contribution to the study of the punctate albinotic fundus with congenital hemeralopia.** *Annali di Ottalmologia*, 1913, No. 1.

COATS (118, **Occlusion of the central vein of the retina**) reviews thirty-six cases of this nature that have been examined pathologically. In most cases the condition was that of a thrombus due to slowing of the blood current or disease of the wall of the vessel, always situated near the lamina cribrosa. Filling takes place very soon through the collateral circulation. The disease of the wall is in the form of fibrous proliferation, hyaline degeneration, proliferation of the endothelium, or teleangiectasis, the first being the most common. The central and ciliary systems of vessels are independent. Glaucoma is a direct consequence of occlusion of the central vein. Another frequent consequence is a deposit and organization of inflammatory cells on the surface of the iris, which he agrees with Inoyes in ascribing to the irritant action on the surface of the iris of the toxines set free in the posterior segment by the disintegration of the blood.

DARIER (119, **Treatment of detached retina**) has seen 108 detachments in the course of twenty years of practice, three of them of traumatic origin, which were treated by subconjunctival injection of salt solution. Forty five patients came to only a single consultation, sixty underwent regular treatment. Twenty-seven were not influenced at all, twenty were improved and gained a more or less useful vision, and in thirteen the vision returned. From these figures he calculates 10% of cures. An important point in prognosis is that the treatment promises to be of some benefit if the detachment does not involve more than a third of the retina and has not existed too long. The patient should be confined to bed, resting on the back, for a month, while a compressive bandage is applied; every five or seven days a subconjunctival injection of salt solution, increasing in strength up to 20%, with the addition of acoin, should be given after the eye has been carefully cocainized. In addition he institutes treatment for any general disease that may be present, such as syphilis or tuberculosis. In favorable cases an improvement is to be noticed after the second injection, but the treatment must be carried out according to the programme after the retina has become reattached. Surgical treatment is less effective and is to be considered only in old and extensive detachments.

CAUSÉ.

GRADLE (121, **Anomaly of the macular retina**) describes three cases in which the normal depression of the fovea took place abruptly, giving an appearance like that of a glaucomatous cup. Blood-vessels were seen to dip into the depressions. The vision was normal and he does not regard the cases as pathological. ALLING.

GINZBERG (120, **Vascular tumor of the retina**) reports the case of a patient 14 years old, both of whose eyes were found normal on examination in May, 1905, who complained in January, 1906, of flickering in front of his left eye. Six weeks later there was a little opacity and swelling of the temporal margin of the papilla, enlargement of the blind spot, and vision 1. No signs of constitutional trouble or of general infection could be gained from the history or from a general examination. In the right eye was a rose-colored node, ½ p.d. in diameter, about 5 p.d. below the papilla, with part of the retinal vessels passing over, part around it. This condition of the right eye remains unchanged to-day. In the left eye there was at first a rapid and then a slow increase of the swelling of the papilla, which at the end of January had developed into a tumor 4 D high, and about 3 p.d. broad. In 1908 there was detachment of the retina, in 1910 attacks of glaucoma appeared which rendered enucleation necessary in 1912. Section of the globe revealed a total, folded detachment of the retina. In the temporal part of the papilla and the adjacent retina was a neoplasm fairly sharply delimited from the retinal tissue, of about 1½ to 2½*mm* diameter in the section, composed of blood-vessels and glia. A peripheral portion consisted of loose glia rich in fibers and cells with giant nuclei and many little vessels. On the vessels were many proliferations of cells of an endothelial character; the walls of the large vessels were permeated not only by such cells, but also by others of indefinite form. Toward the middle of the section that passed through the middle of the optic nerve, the proliferation of glia involved the margin of the neoplasm. The principal mass of the latter was here composed of a fine vascular network containing blood, within which lay large, vacuolized cells, usually with shrunken nuclei, fat or lipoid cells. In the rest of the retina were to be seen the ordinary changes of detachment together with proliferations of glia, and especially

a second node of ½ x 1*mm* diameter between the inner granular and the plexiform layer. It consisted of distended blood-carrying vessels, endothelial sheaths with swollen adventitia, and of fat or lipoid cells, such as those in the principal tumor, which filled the meshes between the vessels. This tumor was sharply differentiated from the granular layer, but not everywhere from the plexiform layer, where lines of cells (glia?) reached to the tumor cells. We thus find in the principal tumor: (1) a moderately swollen proliferation of vessels and adventitial cells; (2) proliferation of glia which is nowhere sharply delimited from the vascular tissue and also passes out over the mass, so that it can be looked upon as simply reactive. These two components constitute an angioglioma, similar to the soft glioma of the brain, which has only a local malignity. The origin of the xanthom cells, as well as of the cells permeating the vessel walls, with the exception of the typical endothelial proliferations, is not easy to determine. They may be glia cells, or cells from the walls of the vessels. The multiplicity of the tumors and their occurrence in both eyes makes the case closely related to the angiomatosis of Goldzieher, Czermak, and von Hippel, from which it differs only in the absence of the prolongations and dilatations observed in those cases. All other differences are only of degree, and whether this is sufficient to separate it must be determined by future observations. The gliomatous proliferation was very great in this case, so that the ophthalmoscopically visible nodes were not blood red. He suggests the name angiogliomatosis.

ADAM.

In OLIVER'S (122, **Hyaline bodies at the optic disk in a case of retinitis pigmentosa**) case the nasal and temporal quarters of the disk's margin were covered by two yellowish white, semi-transparent bodies which projected into the vitreous for the distance of from 6 to 10 D. Under these the retinal vessels passed. Six similar masses were present in the left eye.

GROUT.

WILLIAMS (124, **Hole in the disk**) discovered a hole with perpendicular sides in the sloping surface of a physiological excavation of the optic nerve. The area was about a quarter of the size of a nerve quadrant. The floor was four diopters below the disk surface.

ALLING.

TRANTAS (123, **Ophthalmoscopic lesions in the vitreous in glioma of the retina**) reports two cases of glioma in which he was able to detect the punctate opacities in the posterior segment of the vitreous formerly described by him. The first case was that of a boy 11 years old who was observed in the first stage of a glioma. At this early time the disease of the vitreous could be diagnosed, although that tissue had not become fluid or degenerated. The second case was one of bilateral glioma in a child 2½ years old. The vitreous seemed clear at first on ophthalmoscopic examination, but when strong convex glasses were used the opacities could be brought out. They could be seen best against the papilla or the bright spot afforded by the tumor. Trantas is of the opinion that the minute nodules are not little fragments of the tumor which have fallen secondarily into the vitreous, but that they are indications of a heteroplastic degeneration of the same pathological stage as the disseminated retinal nodules to be seen in the immediate neighborhood of the tumor. Trantas has seen fifteen gliomas in a total of 35,000 cases. Eight of these could be examined with the ophthalmoscope, and four of them showed retinal hemorrhages. Three had convergent strabismus, two divergent. Eleven were in boys, four in girls.

CAUSÉ.

In a healthy man 35 years old, ZANI (125, **Punctate albinotic fundus with congenital hemeralopia**) found marked hemeralopia and in the fundus numberless very small white points beneath the retinal vessels, yet without visible changes in the retina, choroid, or the vessels. This condition confirms the view of Lauber, that this is a congenital anomaly of the epithelial layers of the retina. CALDERARO.

XXI.—OPTIC NERVE AND THE VISUAL TRACT.

126. BUTLER, T. HARRISON. **A case of optic neuritis with retinitis and consecutive atrophy associated with pregnancy.** *Ophthalmoscope*, October, 1913.

127. CRAMPTON, G. S. **Two cases of binocular coloboma of the optic nerve in the same family.** *Transactions American Ophthalmological Soc.*, 1913.

128. KRAUSE, F. **Uncommon tumor of the cerebellum cured by operation.** *Berliner klinische Wochenschrift*, No. 47, p. 2169.

BUTLER'S (126, **Optic neuritis with retinitis and consecutive atrophy associated with pregnancy**) case differs from other similar cases reported in that the optic neuritis developed apparently after delivery. The patient was first seen two months after the birth of a stillborn child and gave a history of headache, vomiting, and vertigo beginning fourteen days after delivery. Examination of the fundi showed a double optic neuritis of 2 D with well-marked fans in the macular regions and large white plaques in the neighborhood of the disks. The fields were contracted with interlacing of colors. The vision of the right eye was $\frac{5}{18}$, of the left $\frac{5}{36}$. The patient was under treatment for four months, part of the time being in the hospital, and when discharged was perfectly well. At the final examination the disks were chalky white and the arteries small, the vision of the right eye was $\frac{5}{60}$, of the left $\frac{5}{9}$. As nephritis, syphilis, tuberculosis, anæmia, and cerebral tumor could be ruled out, little doubt is left that the optic neuritis was caused by a toxæmia dependent on the pregnant state. GROUT.

KRAUSE (128, **Uncommon tumor of the cerebellum**) extirpated successfully a fibrosarcoma which started from the arachnoid of the left hemisphere of the cerebellum. The dura was normal. The tumor weighed eighty grams, and measured 58 x 48 x 45*mm*. The patient had nystagmus, areflexia of the cornea, diplopia, amaurosis of the right eye, and could count fingers at a few meters with the left. After the operation the vision of the right eye was fingers at a few meters, that of the left was very good.

CRAMPTON (127, **Binocular coloboma of the optic nerve in the same family**) describes a case in which the papilla of one eye was replaced by a large, almost round, sharply defined hole in the sclera which was about 2½ times the size of the normal nerve head. The depth of the excavation was 18 D, and showed ill-defined vessels on its floor. There were also three areas adjoining where the choroid was absent. The rest of the fundus showed only slight pigment disturbances. The other eye presented a similar though smaller excavation. A sister of this patient had deep excavations with sharply defined edges. There was no apparent increase of tension in either case. According to the author only twenty-one cases in sixteen

patients have been recorded of coloboma of the optic nerve without involvement of the choroid. ALLING.

XXII.—ACCIDENTS, INJURIES, FOREIGN BODIES, PARASITES.

129. BERNSTEIN, E. J. **Sudden total blindness following iodine or a fracture.** *Ophthalmology*, October, 1913.

130. RAUENBUSCH. **Contribution to fibrosis of the eye.** *Muenchener med. Wochenschrift*, p. 2910.

131. SSOKOLOW, M. **Good result after a severe injury of the eyeball.** *Rusky Wratsch*, 1913, xii., p. 326.

132. SWEET, W. M. **Fourth series of cases of injuries from foreign bodies examined by the Roentgen rays with results of operations.** *Transactions American Ophthalmological Society*, 1913.

133. VAN LINT. **Grains of powder in the iris.** *La clinique ophtalm.*, xix., p. 564.

134. VAN LINT. **Fragment of copper in the eye.** *Ibid.*, p. 565.

BERNSTEIN (129, **Blindness following iodine or a fracture**) observed a woman who had suffered a Colles' fracture and had had œdema of the arm and herpes of the arm and face after application of tincture of iodine. About two weeks after the injury she became suddenly totally blind in both eyes with complete paralysis of the levators of the lids. The pupils were contracted, but it is not stated whether they reacted to light. The fundi showed arteries very much contracted and the veins enlarged. One month later the fundi were normal, but there was only perception of light in either eye. Iodine poisoning has been known to produce ocular paralyses, but not blindness.

ALLING.

SWEET (132, **Injuries from foreign bodies**) reports a series of 280 cases. The foreign body was in the lens in seven, in the iris in two, in the ciliary region in nineteen, near the equator in fifty-one, in the posterior part of the eyeball in seventy-three, in the orbit in thirty-three. In ninety-five cases the X-ray did not show the foreign body. Sixty-five eyes required enucleation, in twelve no operation was performed, or failed. In twenty vision was $\frac{6}{12}$ or better, in sixteen from $\frac{6}{12}$ to $\frac{6}{60}$, five counting fingers, thirty-two perception of light, five no perception of light, seven phthisis.

ALLING.

VAN LINT (134, **Fragment of copper in the eye**) gives the clinical history of a case in which a bit of copper was driven

into the eye through the lower limbus. He found prolapse of the iris, traumatic cataract, and a fairly severe condition of irritation of the eye. The fragment was located by means of the X-ray in the lower part of the eye. Attempts to remove it failed and the autotelegraphic probe of Hedly proved of no avail. The eyeball had to be enucleated, and after hardening the foreign body was found in its upper segment. It measured 3.5 x 5*mm* and weighed 18*mgr*. Probably the fragment was mobilized by the attempt to remove it. CAUSÉ.

VAN LINT (133, **Grains of powder in the iris**) saw, after a shot wound, a grain of powder in the iris where it caused little irritation. In the central part of the cornea there was a delicate scar, all of the other parts of the eye were normal, and the vision was ¼. The deep black grain of powder was about 2*mm* from the pupillary margin of the greenish iris. The prognosis of the injury was thought to be good. CAUSÉ.

SSOKOLOW (131, **Good result after a severe injury**) describes an injury of an eye by the horn of a cow that took place three years before. The iris, lens, capsule, the zonule of Zinn were completely absent. Only a narrow scleral scar .5*cm* long was visible. The vision was $\frac{15}{20}$ with a — 11 glass. MERTENS.

RAUENBUSCH (130, **Fibrosis of the eye**) removed a filaria loa 4*cm* long from the conjunctiva of a patient. The history was interesting as it showed that the filaria could wander within twenty-four hours from the foot to the fingers, and had appeared beneath the conjunctiva three years before.

FIRST QUARTER, 1914.

Edited by MATTHIAS LANCKTON FOSTER, M. D., New Rochelle.

II.—RELATIONS OF OPHTHALMIC TO GENERAL DISEASES INCLUDING POISONS.

1. BARKAN, H. **Combination of tabes and exophthalmic goitre.** *Wiener medizinische Wochenschrift*, January, p. 45.

2. BRAV, A. **Ophthalmic migraine, with report of a case of recurrent paralysis of right external rectus muscle following parturition.** *Journal A. M. A.*, March 14, 1914.

3. BRODTMANN. **Treatment of trigeminal neuralgia with injections of alcohol.** *Berliner klinische Wochenschrift*, January, p. 90.

4. HEED, C. F., and PRICE, G. E. **Binasal hemianopsia occurring in the course of tabetic atrophy.** *Journal A. M. A.*, March 7, 1914.

5. IGERSHEIMER, JOS. **Recent investigations dealing with inherited syphilis of the eye.** *Ophthalmoscope*, December, 1913.

6. LANGENBECK, K. **Retrobulbar neuritis and general diseases.** *Archiv f Ophthalmologie*, lxxxvii., p. 226.

7. LAPERSONNE and VELTER. **A case of cerebral tumor fifteen months after operation.** *Annales d'oculistique*, cli., p. 54.

8. MAGITOT. **Persistence of the photomotor reflex in a case of amaurosis with lesions of the optic nerve and retina caused by intoxication with quinine.** *Ibid.*, p. 48.

9. MAYER and KREIBICH. **Tumor of the hypophysis. Hirsch's operation.** *Berliner klinische Wochenschrift*, No. 5, p. 238.

10. ROESSLER, F. **A case of hydrocephalus cured by operation.** *Wiener medizinische Wochenschrift*, January, p. 45.

11. SHOEMAKER, W. A. **A case of unilateral interstitial keratitis due to parotitis.** *American Journal of Ophthalmology*, January, 1914.

12. STOCK. **Hemorrhages in the retina in miliary tuberculosis.** *Klin. Monatsbl. f Augenheilkunde*, 1914, p. 75.

ROESSLER'S (10, **Hydrocephalus cured by operation**) case of hydrocephalus internus in a patient 18 years old, began with general symptoms of intracranial pressure and impairment of vision. Four months later there was bilateral choked disk, enlargement of the blind spot, and contraction of the visual field. Decompression over the cerebellum produced improvement and seven months later the fundus was normal and the vision $\frac{6}{6}$ in each eye.

DE LAPERSONNE and VELTER (7, **Cerebral tumor**) report the condition of a patient, 47 years old, fifteen months after the removal of a cerebral tumor, who may be said to be cured. Aside from the headache and the choked disk which was more marked on the left side, all localization symptoms were wanting, but the operation was performed on the left side because of the greater choked disk, and a large meningeal sarcoma was removed. Two days after the operation a complete right-sided hemiplegia with aphasia set in, but these conditions gradually improved, until the patient finally regained an excellent general condition and a satisfactory vision of the right eye, though that of the left was reduced to $\frac{1}{60}$ by an optic atrophy.

CAUSÉ.

The patient concerning whom MAYER and KREIBICH (9, **Tumor of the hypophysis**) report had suffered for four years from intense headache, to which were added left ophthalmoplegia, bitemporal hemianopsia, paresis of the right abducens, and paleness of the papilla with loss of vision. As improvement did not follow evacuation of an empyema of the ethmoid, but on the contrary atrophy of the right optic nerve appeared with slight ptosis, paresis of the recti and obliqui, slight exophthalmos and paleness of the left papilla, the patient was X-rayed and the picture obtained showed a dilatation of the sella turcica with a thinning of its bed. On this the diagnosis of a tumor of the hypophysis was based although there were no symptoms of acromegaly. The hypophysis was laid bare and a piece excised, the examination of which showed it to be adenomatous tissue. The headache pased away and the right visual field enlarged for a while.

LANGENBECK (6, **Retrobulbar neuritis and general diseases**) finds multiple sclerosis to be the probable cause in more than seventy-five per cent. of the cases of retrobulbar neuritis in which an ectogenous intoxication, syphilis, diabetes, diseases of the accessory sinuses or of the orbit, anomalies of menstruation, pregnancy, lactation, and the consequences of acute loss of blood could be excluded. He considers Uhthoff's symptom of the increase of visual disturbance after bodily straining to be important to the diagnosis of multiple sclerosis.

HOROVITZ.

IGERSHEIMER (5, **Inherited syphilis of the eye**) deals with the various manifestations of inherited syphilis, among which he mentions two cases of inherited syphilitic conjunctivitis. These yielded well to antisyphilitic treatment. He attributes some cases of nystagmus without ophthalmic changes to inherited syphilis and mentions one of his cases which cleared up under antisyphilitic treatment. In keratomalacia syphilis cannot be overlooked as giving rise to severe nutritional disturbance. Experiments in animals showed that keratitis which has been produced endogenously is chiefly a pure spirochætal infection in the blood which penetrated the cornea. The signs of acute inflammation and prompt recovery on treatment agree with this. While parenchymatous keratitis generally met with in man differs in all points from that in

animals, in infants and nurslings an agreement exists with that of the latter and they clear up more quickly than in adults. Therefore Igersheimer thinks it probable that in the fetus and nursling there is a pure spirochætal infection of the cornea. He suggests that the cause in older persons is some toxic products circulating from spirochætal foci (tertiary stage) causing an anaphylactic reaction in the form of parenchymatous keratitis similar to that produced in animals with a foreign species of serum.

CURRAN.

BARKAN (1, **Tabes and exophthalmic goiter**) observed within three months six unquestionable cases in which these diseases were combined, from which he concludes that the combination is more common than has been thought. His cases do not seem to confirm Stern's idea that asthenics with latent hyperthyroidism incline to tabes, and he is unable to decide whether primary latent hyperthyroidism predisposes a syphilitic to tabes, or tabes favors the onset of exophthalmic goiter.

HEED and PRICE (4, **Binasal hemianopsia in tabetic atrophy**) found twenty-one cases recorded of this form of disturbance of the field. In fifteen the lesion could be located in the optic nerves. They do not believe that the condition can be produced by a lesion limited to the lateral extremities of the chiasm, as the crossing of the fibers is at no point in the chiasm in an isolated bundle. Their case was one of tabes with optic atrophy. ALLING.

STOCK (12, **Hemorrhages in the retina in miliary tuberculosis**) saw in a woman 37 years old, who was suspected of having miliary tuberculosis, hemorrhages in the retinæ of both eyes without any visible changes in the vessels. Not until the day of death could three miliary tubercles be discovered in one eye. The microscopic examination showed that there were no foci of inflammation in the retinæ, and no tubercle bacilli could be demonstrated in the hemorrhages, though they were abundant in the miliary tubercles. On the other hand, a destruction of the endothelium could be made out in different places in the retinal vessels which corresponded to the hemorrhages, so he comes to the conclusion that an angiotoxin is formed by the tubercle bacilli which injures the walls of the vessels and permits the escape of the blood corpuscles. Hence, hemorrhages

in the retina may be caused not only by general infections through pus agents, but also by tuberculosis.

BRAV'S (2, **Ophthalmic migraine**) patient suffered from hemicrania associated with dizziness and nausea after each childbirth. With two attacks she had paralysis of the external rectus and with all numerous hordeola on the lids. He believes that the condition was due to some toxæmia of pregnancy.

ALLING.

BRODTMANN (3, **Treatment of trigeminal neuralgia with injections of alcohol**) has employed this treatment with success. Peripheral injections were made at the peripheral foramina, central ones for the second branch in the sphenomaxillary fossa, for the third branch below the foramen ovale. When the nerve trunk is struck, as shown by the pain, 1g of 80% alcohol is injected. Some cases react and then the pain dies away. Sometimes two or three injections are necessary, but the interval between them must be at least eight days on account of the reactive condition of inflammation. When dealing with the second and third branches Brodtmann always makes central injections, but this cannot be done when dealing with the ophthalmic branch. Resection of the Gasserian ganglion is not advisable, because then a paralysis of the muscles of mastication and permanent anæsthesia are to be expected.

SHOEMAKER (11, **Unilateral interstitial keratitis due to parotitis**) relates a case in which a severe inflammation of the cornea appeared in one eye soon after recovery from mumps. In a month the eye had returned to a normal condition.

ALLING.

MAGITOT (8, **Persistence of photomotor reflex in a case of amaurosis**) observed in a case of optic atrophy and retinal changes after quinine poisoning a contraction of the field to the fixation point in one eye and total blindness of the other. The remarkable point was that the reaction to light was preserved in spite of the loss of perception of light. It has been established that in quinine poisoning the retinal elements supplied by the central artery of the retina, the ganglion cells and the inner granular layer, are destroyed, while the cells that derive their nutriment from the choriocapillaris remain intact, and from the behavior of the pupils in this case one may conclude that the pupillary fibers originate in the latter. CAUSÉ.

III.—GENERAL AND EXPERIMENTAL PATHOLOGY AND TREATMENT.

13. Bussy. **The bony eye.** *Rev. gén. d'ophtalm.*, xxxiii., p. 1.

14. Butler, T. Harrison. **A case of panophthalmitis caused by bacillus subtilis following cataract extraction.** *Ophthalmoscope*, January, 1914.

15. Dreyfus. **Three years' experience with salvarsan in syphilis of the central nervous system and in tabes.** *Muench. med. Wochensch.*, 1914, p. 525.

16. Hoffmann. **The cataractous destruction of the lens and its reproduction in the test tube.** *Ibid.*, p. 584.

17. Hummelsheim. **Experiences with Friedmann's remedy in diseases of the eye.** *Verhandl. d. 33 Tagung d. Vereins rhein.-westf. Augenærzte*, Feb. 8, 1914.

18. Morpurgo. **A case of retinal hemorrhage after treatment with calomel and salvarsan.** *Muench. med. Wochenschrift*, 1914, p. 657.

19. Reif. **Cases treated with tuberculin in the University eye clinic at Heidelberg in 1912.** *Inaug. Diss.*, Heidelberg.

20. Risley, S. D. **An inquiry into increased tension of the eyeball.** *Ophthalmoscope*, February, 1914.

21. Roemer, Gebb, and Loehlein. **Experimental and clinical studies concerning the inhibitive and destructive action of aniline dyes upon germs pathogenic to the eye.** *Archiv f. Ophthalmologie*, lxxxvii., p. 1.

22. Steindorf. **Experimental studies concerning the action of eel serum upon the human and the animal eye.** *Berlin Ophthal. Soc.*, Jan., 1914.

23. Terrien and Prelat. **Pathogeny of ocular and auditory lesions observed after the use of salvarsan.** *Arch. d'ophtalm.*, xxxiv., p. 23.

24. Thomson, Ernest. **Regarding a case in which solitary, wedge-shaped choroidoretinal atrophy was observed with acute iridocyclitis, post-ciliary infarction.** *Ophthalmoscope*, January, 1914.

25. Tschirkowsky, W. **Clinical observations concerning specific therapy of infections of the conjunctiva and cornea.** *Westn. Ophthalm.*, xxx., pp. 114 and 195.

From a careful clinical study of his own case Risley (20, **An inquiry into increased tension of the eyeball**) is inclined to regard glaucoma as an "expression on the one hand of a general or endogenous infection of toxæmia, and on the other of an exogenous or local infection." In support of this view he quotes interesting histories of cases in which general treatment markedly influenced the course of the disease for the better.

Curran.

Hoffmann (16, **The cataractous destruction of the lens and its reproduction in the test tube**) shows that the doubly re-

fractive substance demonstrated by Mettenheimer in the cataractous lens is present in every form of cataract, and that it may be found by autolysis of lenses in the test tube, but is wanting in normal young lenses. The same cataractous destruction may be produced by the action of trypsin and thymol on normal lenses, and Hoffmann concludes from this that a fermentative process takes place in cataract produced by autolysis. This autolytic ferment may be present in normal lenses, but not active until some other agent enters, just as the addition of thymol is a precondition to the destruction of the lens by trypsin. He therefore supposes that every cataract depends on the action of its autolytic ferment, the destructive activity of which is rendered possible by various agents in the different forms of cataract.

In BUTLER'S (14, **Panophthalmitis caused by bacillus subtilis following cataract extraction**) case the conjunctival sac was sterile and he claims that everything was done aseptically. He attributes the infection to the fact that bacillus subtilis is hard to kill by ordinary methods of sterilization. It is therefore more to be feared in operations on the globe.

CURRAN.

BUSSY (13, **The bony eye**) describes the various forms of ossification in the eye. Very rare are the congenital, little benign ossifications that form in the development of the lens, and the osteomata of the conjunctiva, as distinguished from the conjunctivitis ossificans, which results from inflammations, especially from trachoma. Osteoid sarcomas of the choroid have been spoken of, but these were probably inflammatory ossifications complicated secondarily by a sarcoma. The commonest ossifications in the eye are due to inflammatory diseases; they have their own clinical picture, their own symptomatology, and require a special treatment; in other words they are a disease *sui generis*. The ossifications form the final stage of the transformation process of inflammatory exudates after infectious diseases of the eye. These exudates organize first into fibrous tissue with vessels; certain cells, that come from the lymphocytes, differentiate themselves into osteoblasts, which cause the formation of bone by the excretion of ossein. Bone tissue is met with in the choroid so often because this membrane functionates as a periosteum. Rarely does it

occur in the iris, cornea, and retina, more often in the lens and vitreous, but its place of predilection is the choroid. Corresponding to the topography we find ossifications in Stilling's canal, in the postlenticular space, and between the retina and the vitreous. Ossification of the lens is almost always a single localization of a process that is involving the entire eye in which the choroid always participates. Bussy describes six different forms of ossification of the choroid: the perioptic, circular, the anterior ring-shaped, the total dish-shaped, the disseminated, and finally two different complicated forms. Ætiologically infections following perforating wounds and ulcers, as well as metastases have to be taken into account. Bony neoplasms may appear three months after the causal infection, may remain stationary, may enlarge, or may be absorbed. The serious danger that they may at any time excite a sympathetic ophthalmia is ever present. The only rational treatment is the enucleation of the eye as soon as ossification sets in. The latter may be determined very well by radiography, but it is always best to photograph both eyes, because differences in the structure of the orbit may easily give rise to errors. It is noteworthy that it is very difficult to induce ossification in the eyes of animals.

CAUSÉ.

THOMSON'S (24, **Solitary, wedge-shaped choroidoretinal atrophy with acute iridocyclitis**) case showed a wedge-shaped area of choroidal and retinal atrophy, and one or two satellite spots between the apex and the disk, with vitreous opacities, low vision, and acute iridocyclitis. He thinks the case is similar to Coats's cases of posterior ciliary infarction.

CURRAN.

The inflammation induced by the instillation of eel blood into the conjunctival sac, which STEINDORFF (22, **Experimental studies concerning the action of eel serum upon the human and the animal eye**) calls "conjunctivitis ichthyotoxica," runs the same course in almost all cases. There are men whose conjunctivæ are immune to eel serum. By experiment on himself he found that an immunity was established by several repetitions of the inflammation. The serum of different eels differs in toxicity, shown in fluctuations of the hæmolytic index. Kossel's experiment, in which it appeared that the red blood

corpuscles of passively immunized rabbits were more resistant to eel serum hæmolysis, were confirmed. Instillation of an inactive eel serum causes no irritation of the conjunctiva. Sometimes a moderate exophthalmos follows an intravenous injection of eel serum. Rabbits, dogs, cats, horses, and goats react to the instillation with a more or less severe conjunctivitis; guinea-pigs, rats, apes, and birds do not. Subconjunctival injections induce an irritation that increases with the dose, and develops a local immunity. Doses of over 0.1*ccm* cause a necrosis of the conjunctiva and nutritive disturbances in the cornea that are only partly restored. That eel serum is a vascular poison is proved by the anatomical condition of the conjunctiva after subconjunctival injection, and the very considerable weakening of the reaction in animals that have previously been treated with subcutaneous injections of calcium chloride. Intravenous injections of small doses induce a myosis in from ten to fifteen minutes in albinotic rabbits, only rarely in dark ones. The iris becomes very hyperæmic. A single injection suffices to render an animal so that repeated injections of even larger doses fail to produce myosis. It is neither prevented by a previous instillation of atropin or injection of adrenalin, nor overcome by a subsequent use of these drugs. The cause of the myosis is not satisfactorily explained. Nothing is to be hoped for from the use of eel serum in ophthalmic therapy, because of its great and inconstant toxicity, the individual sensitiveness, and the rapidity with which the eye becomes habituated to it. The results that have been ascribed in certain diseases of the eye to treatment with eel blood must be looked upon rather skeptically.

ADAM.

REIB (19, **Cases treated with tuberculin**) reports sixty-three patients twenty-eight of whom were males. The average length of treatment was four and a half weeks. As found by others, no tuberculous lesions in other organs can be demonstrated in a great part of the cases of ocular tuberculosis. Up to 3*mg* of old tuberculin was used for diagnosis. Focal reaction took place in only seven out of the sixty-three; but one cannot allow the diagnosis of tuberculosis to depend on the onset of a focal reaction, as was pointed out by Heine. Nodules were present in eleven of forty-seven tuberculous diseases of the

uvea. Therapeusis was begun with very small doses, 0.001*mg;* the maximum dose was usually 0.06*mg*, once 1*mg*. The average number of injections was twelve, but it must be remembered that in many patients the treatment was not completed for various reasons. It is very difficult to estimate the results, especially as the observation has lasted only a year. A cure or a marked improvement took place in the course of treatment in twenty-four, and in some of these, who had been treated otherwise in vain, the improvement had to be ascribed to the treatment with tuberculin. Four cases became worse in spite of the tuberculin treatment, and these give a warning that no marked local reaction should be produced by the treatment. The writer comes to the conclusion that as long as there is no better treatment known it is justifiable to try this, taking all precautions, in spite of the absence of any unobjectionable evidence that it is of particular value.

HUMMELSHEIM (17, **Friedmann's remedy**) tried Friedmann's tuberculosis remedy on eight patients, three of whom had uveitis, one complicated with tuberculous keratitis, three had chronic iridochoroiditis, one scrofulous keratoconjunctivitis, and one dacryocystoblennorhea with an adherent fistula at the lower margin of the orbit. Some of the cases showed a slight transient improvement, the others none at all.

HUMMELSHEIM.

TSCHIRKOWSKY (25, **Specific therapy of infections of the conjunctiva and cornea**) first describes two cases of grave, acute conjunctival diphtheria quickly cured by 7000 and 8000 units of antitoxin. In one case of chronic conjunctival diphtheria the result was slower and only transient in spite of four injections of 5000, 8000, 6000, and 5000 units. In eleven cases of pneumococcal conjunctivitis he found Roemer's antipneumococcus serum useful, but unable to abort the attack. He considers this serum unquestionably valuable as a prophylactic before operations on the eyeball. No material result was produced in the treatment of eighteen cases of chronic diplococcal conjunctivitis. In thirteen cases of pneumococcal infection of the cornea he found that the administration of large doses of antipneumococcic serum produced an improvement in the subjective condition, a decrease of pain, and in some cases a local reaction marked by a greater infiltration of the progressive

margin. Most of these were far advanced, bad cases, and in eight the final result was bad. In five the serum had a good influence. In five cases in which the injection was made after an operation for cataract, a very good influence could be ascribed to it in three, none at all in two. In the former the infection appeared four or five days after the operation, in the latter within twenty-four hours with the symptoms of a violent infection.

MERTENS.

ROEMER, GEBB, and LOEHLEIN (21, **Inhibitive and destructive action of aniline dyes upon germs pathogenic to the eye**) find that a number of dyes have a very strong bactericide action, and that this action is specific in that they kill certain kinds of bacteria and affect others little or not at all. They then combined dyes that affected certain kinds of bacteria and obtained mixtures that were even more energetic. Thus they have mixtures for diplobacilli, pneumococci, gonococci, and staphylococci in concentrations that can be borne without harm by the human eye.

DREYFUS (15, **Salvarsan in syphilis of the central nervous system**) from his experience highly approves of the salvarsan-mercurial treatment of tabes and of syphilis of the central nervous system. He prefers old salvarsan, seldom exceeds 0.4*g* as a single dose, but gives four or five grams during treatment. He discusses the influence of age, of the general condition of the body, of circulatory disturbances, and of pulmonary tuberculosis upon the indications, and their dependence on the stage of syphilis. Neurorecidives occur in his experience only when the first treatment has failed to make the fluids of the patient Wassermann negative. He is strongly of the opinion that salvarsan should be used in tabes, as a distinct improvement can thus be secured in a large percentage of the cases, while there is no such intolerance to salvarsan as is often observed with mercury.

TERRIEN and PRELAT (23, **Pathogeny of ocular and auditory lesions observed after the use of salvarsan**) report four cases of ocular and auditory disturbance after the use of salvarsan. All of the patients were in the second stage of syphilis. In spite of eight months of treatment with mercury an iritis appeared in the first patient, 35 years old, which grew worse

after two intravenous injections of salvarsan of 0.4g each, and was associated with a papillitis and simultaneous deafness. The condition of the eye improved under mercurial treatment which was again resorted to, but the hearing remained unchanged. In the second case three injections of neosalvarsan, 0.45, 0.45, and 0.6, were given three months after the primary infection. Three weeks later a left-sided iridocyclitis and deafness set in, which disappeared under the influence of intravenous injections of mercury. The third patient had three intravenous injections of salvarsan two months after infection. Six weeks later he had a paresis of the right externus, left-sided deafness, and facial paresis. Improvement slowly followed mercurial treatment. In the fourth case two injections of an unknown amount of salvarsan were given a month after the infection, and the ocular symptoms were said to have appeared six days later. Two months later there was bilateral optic neuritis, which recovered under mercurial treatment, the right entirely, the left leaving an impairment of vision. In the discussion they consider it more probable that the ocular and auditory symptoms were of a syphilitic nature rather than toxic.

CAUSÉ.

MORPURGO (18, **Retinal hemorrhage after treatment with calomel and salvarsan**) observed in a patient 24 years old with fresh syphilis, who had had one injection of 0.6g neosalvarsan and several doses of calomel, a rise of temperature to 39.2° and a rash like scarlet fever on the seventeenth day after the injection. Some days later hemorrhages appeared in the subcutaneous cellular tissue, in the mucous membrane of the mouth, in the nose, and later in both retinæ. After absorption of the blood the vision regained was $\frac{6}{8}$ and $\frac{6}{18}$. He ascribes the trouble to poisoning with salvarsan. De Favento, who reported the same case, thought that the calomel was the harmful factor.

IV.—METHODS OF RESEARCH, REMEDIES, INSTRUMENTS, AND GENERAL OPERATIVE TECHNIQUE.

26. BURDON-COOPER, J. **Direct ophthalmoscopic examination with indirect vision and illumination.** *Ophthalmoscope*, Dec., 1913.

27. CONSTENTIN. **New way of adapting the alternating current to the giant magnet.** *Arch. d'ophtalmologie*, xxxiv., p. 45.

28. GEBB. **Local anæsthesia in ophthalmology with novocain and potassium sulphate.** *Muenchener medizinische Wochenschrift*, No. 9, p. 477.

29. GIFFORD, H. **Technique of evisceration.** *Ophthalmoscope*, Jan., 1914.

30. LEWIS, F. P. **Shield for Graefe cataract knife and angular keratome.** *Ophthalmic Record*, March, 1914.

31. MADDOX, E. E. **A new way of using Burdon-Cooper images.** *Ophthalmoscope*, February, 1914.

32. REINFLET. **Local anæsthesia in ophthalmology.** *La clin. ophtalm.*, xx., p. 145.

33. SIMPSON, F. E. **Radium in the treatment of blastomycosis with report of a case.** *Journal A. M. A.*, March 14, 1914.

34. UHLE, A. A., and MACKINNEY, W. H. **Salvarsan and neosalvarsan in the treatment of syphilis with especial reference to diseases of the eye.** *Ophthalmic Record*, February, 1914.

35. VERHOEFF, H. F. **Ultra-violet light as a germicidal agent.** *Journal A. M. A.*, March 7, 1914.

36. WIENER, ALFRED. **A preliminary report upon the specific action of ethyl hydrocuprein on pneumococcus infection of the external tissues of the eye.** *Medical Record*, Jan. 17, 1914.

In this paper BURDON-COOPER (26, **Direct ophthalmoscopic examination with indirect vision and illumination**) draws attention to the value of eccentric illumination in examination of the fundus oculi, with regard to the position, size, and shape of small objects. By eccentric illumination varying lower degrees of light intensity can be utilized to bring into view objects which are not seen in bright illumination. He also discusses examination with parafoveal vision, and urges that it be used more often in ophthalmic work.

CURRAN.

MADDOX (31, **New way of using Burdon-Cooper images**) utilizes the Burdon-Cooper images to find the axis of toric cylinders by producing the images with some bright object, as a knitting needle; varying the distance until they become clear and then rotating the needle till the images become parallel. The axis will lie in this line or 90° from it. It is best done on a background of black velvet.

CURRAN.

CONSTENTIN (27, **Adaptation of the alternating current to the giant magnet**) attaches to the magnet a glass containing an ammonium phosphate solution with an aluminium and lead electrode immersed in it, which plays the part of a condenser

and resonator so as to enable the magnet to act well with the alternating current.

CAUSÉ.

LEWIS (30, **Shield for cataract knife and angular keratome**) has devised a useful shield to fit over the blades of knives to protect them from injury in handling and sterilization.

ALLING.

WIENER (36, **Specific action of ethyl hydrocuprein on pneumococcus infection**) reports a case of progressive corneal ulcer in which the use of ethyl hydrocuprein gave most gratifying results. The ulcer was bathed with a one per cent. solution of ethyl hydrocuprein for one half minute every hour for six hours on the first day and twelve hours on the next. The ulcer cleared up rapidly, although a chronic dacryocystitis was present.

GROUT.

VERHOEFF'S (35, **Ultra-violet light as a germicidal agent**) experiments are a refutation of the claims of Hertel, who reported the successful use of ultra-violet light in the treatment of corneal ulcers, asserting that it had a direct germicidal action. The experiments were made by injecting staphylococci, pneumococci, and tubercle bacilli into rabbit's cornea. He used the magnetite arc and the quartz-zinc arc. He concludes that within the cornea bacteria cannot be destroyed by these means without injury to the tissues, neither can the light be used successfully in corneal ulcers because the exposure would have to be too prolonged, or of such intensity as to produce a decided amount of heat.

ALLING.

SIMPSON (33, **Radium in the treatment of blastomycosis**) used radium in a case with this lesion at the inner canthus. The tumor was of three months' duration and involved an area of two square centimeters. It had a wart-like appearance, showed an inflammatory border, and contained a few small abscesses. After three hours of interrupted treatment extending over three weeks the mass entirely disappeared.

ALLING.

The conclusions of UHLE and MACKINNEY (34, **Salvarsan and neosalvarsan in the treatment of syphilis**) are based upon observations of five hundred patients treated with these

remedies. They have never seen such after-effects as high temperature, marked headache, delirium, intense depression, violent vomiting, diarrhea, or anuria, and attribute their success to the use of distilled water or normal salt solution in the preparation of the injections. Slight symptoms, however, are common. The only contraindication to its use is nephritis. The recorded deaths they believe to be due to improper doses, insufficient care in preparations, or the presence of nephritis. They prefer the intravenous method and think salvarsan and neosalvarsan equally efficient. In eye lesions, interstitial keratitis seems to be the most resistant. Acute syphilitic inflammations are immediately affected and muscle palsies show consistent improvement at once and a cure in a few weeks. Optic neuritis is favorably affected, but for optic atrophy it offers no hope.

ALLING.

REINFLET (32, **Local anæsthesia in ophthalmology**) recommends local anæsthesia even in the larger operations on the eye, especially in enucleation. He injects in all 4*ccm* of a 1% solution of novocain in two series of four injections deeply into the orbit in the direction of the recti. The main point is to wait at least half an hour before beginning the operation, as the anæsthesia is then complete, and the effect of the adrenalin as well. It is very important that the solution be perfectly fresh. By this method he has enucleated eyeballs that had undergone serious inflammatory changes with perfect anæsthesia.

CAUSÉ.

GEBB (28, **Local anæsthesia in ophthalmology**) has confirmed the observations of Hoffmann and Kochmann that the anæsthetic effect of novocain is increased by the addition of potassium sulphate so that a weaker solution of novocain is sufficient for the purpose. In a series of extirpations of the lacrimal sac, enucleations, and exenterations of the orbit, he has found a ½% solution of novocain to suffice, instead of the usual 1 or 2% solution, when 2% of potassium sulphate is added. Headache, nausea, and vomiting were complained of in some cases, but they quickly passed away.

GIFFORD (29, **Technique of evisceration**) thinks that: (1) It is better to do a keratectomy even if Mules's operation is

done; (2) When doing Mules's operation and the cornea is sacrificed whether from choice or necessity, the line of sutures should be protected by sliding the conjunctiva down and attaching it firmly to the sclera $\frac{3}{16}$ of an inch below the sutures. (3) When Mules's operation is not done the best stump is obtained by flattening the sclera by pushing the anterior and posterior wall together and thus making a flat disk. He never does Mules's operation in any form unless the patient accepts the additional risk of sympathetic ophthalmia.

CURRAN.

V.—ANATOMY, EMBRYOLOGY, MALFORMATIONS.

37. BEGLE, H. L. **Developmental anomaly at the inner canthus.** *Zeitschr. f. Augenheilkunde*, March, 1914, p. 235.

38. COUTELA. **Colobomatous excavation of the papilla.** *Arch. d'ophtalm.*, xxxiv., p. 46.

39. COUTELA and FAURE BEAULIEU. **A case of apron of the conjunctiva.** *Annales d'oculistique*, cli., p. 227.

40. KAYSER, B. **Megalocornea or hydrophthalmos.** *Klin. Monatsbl. f. Augenheilkunde*, 1914, pl. 226.

41. POLACK. **Abnormal fold of the bulbar conjunctiva.** *Annales d'ocul.*, cli., p. 55.

42. VON PFAUNDLER. **Demonstration of a one-year-old child with many congenital malformations.** *Muenchener med. Wochenschrift*, 1914, p. 280.

43. ZILKENS, K. **An improved decalcification fluid for microscopical examinations.** *Zentralbl., f. allgem. Pathol. u. pathol. Anat.*, 1914, p. 61.

ZILKENS (43, **Improved decalcification method**) has sought to find a fluid for decalcification which works rapidly and enables the section to be stained better and has found the following solutions to be the best: (1) for teeth, and large hard bones, nitric acid (25%) 18*ccm*, formol (40%) 8*ccm*, concentrated aqueous solution of chloral hydrate 8*ccm*, antiformin (20%) 10*ccm*, water 120*ccm*, sodium chloride 8g, (2) for smaller bones and tissues containing little bone, nitric acid (25%) 15*ccm*, formaldehyde (40%) 8*ccm*, concentrated aqueous solution of chloral hydrate 5**ccm**, antiformin (20%) 5*ccm*, water 100*ccm*, sodium chloride 8g.

BEGLE (37, **Developmental anomaly at the inner canthus**) pictures two cases with rounding off of the inner canthus, abnormal construction of the Meibomian glands, and a con-

nective tissue layer in place of the substantia propria of the sulcus subtarsalis. One case he examined histologically. As the anomalies affected both eyelids and no inflammatory cause could be ascribed, the malformation was thought to be congenital. Its origin could be explained by an irregular adhesion of the surfaces of the margins of the lids about the third embryonal month.

KAYSER (40, **Megalocornea or hydrophthalmos**) reports a family in which pure megalocornea was hereditary for six generations. The heredity belonged to the Horner–Bollinger type, otherwise known as indirect heredity in which the second generation is healthy and the disease is transmitted to the third, and the disease is confined to one sex. In this case the males of the family were affected. As increase of tension, excavation, lacerations in Descemet's membrane, and usually poor vision were lacking, Kayser maintains that these were cases of megalocornea and not of hydrophthalmos.

VON PFAUNDLER (42, **Congenital malformations**) demonstrated a child one year old who presented as congenital malformations kyphoscoliosis, funnel breast, talipes calcaneus, flat-foot, heart disease, hydrophthalmos, luxation of the lens, and tremulous iris. The advanced ossification and the unusual length of the hand and foot were striking. Hyperpituitarism was thought to be the cause.

COUTELA (38, **Colobomatous excavation of the papilla**) observed in a 17-year-old boy with ptosis and strabismus di- and deorsumvergens a colobomatous excavation of the papilla. The right eye was normal and had perfect vision, while the left was divergent and had a slight ptosis, which brought the patient under observation. The oval, bluish-gray papilla was nearly three times as large as it should be, divided into two parts by a whitish cord running obliquely downward and outward, and excavated more than 3*mm*. The excavation was bordered by a broad scleral ring, into which many small vessels dipped. In addition there was a large staphyloma that showed the usual myopic changes. The eye was 18 D. myopic and saw only movements of the hand, no improvement with glasses. In the origin of the coloboma of the papilla it is probable that a certain influence was exerted by inflammatory changes in addition to the purely fissural theory of v. Ammon.

This case stands midway between physiological excavation and total congenital excavation.

CAUSÉ.

COUTELA and FAURE BEAULIEU (39, **Apron of the conjunctiva**) observed a case of this nature, which has also been described under the name of epitarsus. The triangular fold extended from the upper fornix toward the free margin of the lid, and was attached at its upper and lower ends, between which a probe could be passed. Probably this malformation is very rare and is caused perhaps by an amniotic adhesion with the periocular tissue.

CAUSÉ.

POLACK (41, **Abnormal fold of the conjunctiva**) reports a case of epitarsus in a man 22 years old, otherwise normal. From the upper transition fold down to just above the free margin of the lid there was a smooth triangular fold on the conjunctiva tarsi that ran to a point at its lower end and was there attached to the conjunctiva. A probe could be passed between the fold and the conjunctiva tarsi.

CAUSÉ.

VI.—NUTRITION AND INTRAOCULAR TENSION.

44. HAMBURGER, C. **The course and exit of the intraocular current.** *Berlin Ophthalmological Society*, January 22, 1914.

HAMBURGER (44, **Course and exit of the intraocular current**) maintains that the escape of the intraocular fluid is not through Schlemm's canal alone, but also through the perivascular lymph spaces of the iris. He holds that in glaucoma Schlemm's canal is never diseased alone, but always with the iris and ciliary body. The curative action of iridectomy is obscure; it is certainly not due to the freeing of Schlemm's canal, as he showed by an experiment.

ADAM.

VII.—THE SENSE OF SIGHT.

45. BERNSTEIN. **A theory of color perception on physiological grounds.** *Arch. f. d. ges. Physiol.*, clvi., p. 265.

46. BROCA. **Some considerations concerning the study of ocular hygiene.** *Annales d'oculistique*, cli., p. 186.

47. BROCA and LAPORTE. **Study of the principal sources of light from the point of view of the hygiene of the eye.** *Ibid.*, p. 190.

48. CORDS. **The perception of depth of the one-eyed and its test.** *Verhandl. d. 33 Tagung d. Ver. rhein-westf. Aubenærzte*, February 2, 1914.

49. ELDRIDGE-GREEN, F. W. **Bichromic vision.** *Ophthalmoscope*, January and February, 1914.

50. OEHRWALL. **Is there a visual sensation of movement?** *Skandin Arch. f. Physiol.*, XXX., p. 229.

51. SCHULZ. **The influence of sodium santonate on the ability to distinguish dark and light of the same color.** *Arch. f. d. ges. Physiol.*, cliv., p. 140.

52. SNELLEN, H. **Amblyopia ex anopsia.** *Nederl. Tijdschr. voor Geneesk.*, 1914, i., No. 8.

GREEN (49, **Dichromic vision**) applies the term dichromic to those who, when examined with a bright spectrum, say that they see only two colors there. Many dichromics have applied different color names to the various divisions of the spectrum when they have some idea of the region presented to them. The presence of a neutral area, the confusion of red, yellow, and green with others, and the confusion of purple with green and gray are diagnostic of the dichromic. In presenting a discussion of his cases examined by the spectrum Green says:

"There are many degrees and varieties of dichromic vision. There are not two well defined varieties of dichromic vision but gradations connect the two. All dichromics are not equally color-blind. It is associated with defects of light perception. This is also found in cases where vision is not dichromic. Shade and luminosity curves are similar to normal. Many dichromics match accurately when the colors are not too close in the spectrum. The condition varies with health. Color discrimination is diminished as a whole in dichromic vision. The cause is probably a defect in the power of color differentiation corresponding to an earlier state in the evolution of the color sense. The two colors seen are red and violet.

CURRAN.

OEHRWALL (50, **Is there a visual sensation of movement?**) reviews the various facts that would indicate such an existence, but decides that in no case is the sensation simple, but complex, leading to the conception of movement. The characteristic of the impression of movement is that the intensity of stimulation in a series of sensory elements increases in one direction, but at the same time decreases in the other. Many of the impressions of movement appear simple and immediate; they are

also primitive in the sense that the person forms them during his development and they therefore belong to the first conceptions. For this reason they are not easy to analyze, but accurate investigation shows that they are not immediate sensations, rather are psychical processes of a high order, and should be characterized as conceptions, ideas, or perceptions.

An increase of the sensitiveness to violet precedes the yellow vision of santonin poisoning, and then undergoes a marked depression, according to SCHULZ (51, **Influence of sodium santonate on the ability to distinguish dark and light of the same color**). The sensitiveness for red and blue is also increased at first and later lowered. Schulz also says that disturbances of the color sense are demonstrable after the administration of tincture of digitalis. After ten drops of the tincture the sensitiveness for green sinks notably, while after doses of one drop it is increased. These observations seem to him to indicate the correctness of Arndt's biological law.

BERNSTEIN (45, **A theory of color perception**) starts from the idea of Helmholtz, mentioned in his three-component theory, that different sorts of fibers exist in the optic nerve for the different components, and thinks he is justified in assuming separate nervous elements in the organ of perception, the conducting tract, and the brain centers for all of the supposed basal sensations of the light sense. He assumes that two visual substances for each two opposite colors have developed from the original visual material for white. He thinks that the system of persons able to distinguish colors should be considered a threefold compound dichromatic system, the basal colors of which are red-green blue, yellow-indigo blue, and yellow green-violet. He even considers it possible that still more basal elements may exist. This theory is a compromise between those of Hering and Helmholtz. The principle of Helmholtz's theory as regards the retinal process is accepted, together with the nucleus of Hering's, the principle of opposite colors and the unity of the perception of white. In the interpretation of the different forms of color-blindness he agrees perfectly with Hering. The theory is similar to Schenck's, except that Schenck thinks that the red-green visual substance develops through splitting of the yellow visual substance.

CORDS (48, **Perception of depth by the one-eyed**) investiga-

ted the question whether a person who had had only one eye for a long time made more movements of the head and utilized them better than a person who had one eye bound up. The movements of the head were recorded by means of a pencil attached to the head of the person being examined. He found that the parallactic displacement was more appreciated in the perception of depth by those who had been one-eyed for more than a year, their grossest errors considerably less, and their judgment more prompt. Judgment was best and quickest in those who had been one-eyed from childhood. Yet there were persons who had been one-eyed for over a year whose judgment was worse on the average than that of a two-eyed person with one bound up, and on the other hand there were persons among the latter who were able to judge better than the average of the former. The test of the value of the head movements gave rather better results in those who had one eye bound up than in those who had lost an eye more than a year before.

HUMMELSHEIM.

SNELLEN (52, **Amblyopia ex anopsia**) has discarded Donders's theory of amblyopia ex anopsia. The amblyopia is not caused by disuse, but is always due to some organic cause. It is neither the cause nor the result of strabismus, it is either quite independent of it, or due to a common cause. Cases of improvement of vision through practice are to be explained in some other way.

B. V. VISSER.

BROCA and LAPORTE (46 and 47, **ocular hygiene**) report the results of their studies concerning the hygiene of the eye in the methods of artificial illumination employed in industries and in daily life. They measured in the different kinds of light the vision, the ease of reading, the pupillary reaction, and the after images. They find that photometrically equivalent sources of light gave the same measurements in all four of these ways, and that none of the kinds of light investigated presented any material advantage over the others. The best quantity of light for work is between twenty- and forty-candle power. The study of the pupillary reaction showed that under no condition should the source of light be within the field of vision, not even in the periphery; it easily leads to weariness during work, and the more easily the worse is the illumination of the

object worked on. In certain cases a specially bright illumination improves the vision, but only at the cost of weariness. The hygienic demands are best complied with by indirect illumination through diffusion. The studies of the after images suggest the recommendation that the source of light should be removed as far as possible from the visual field.

CAUSÉ.

VIII.—ACCOMMODATION AND REFRACTION.

53. CARSTEN. **The refraction of 600 school children.** *Wochenschr. f. Ther. u. Hyg. d. Auges*, xvii., p. 101.

54. CHEVALLEREAU. **Apparent partial accommodation in aphakia.** *Annales d'oculistique*, cli., p. 226.

55. HAY, PERCIVAL. **The development of myopia.** *Ophthalmoscope*, Feb., 1914.

56. ISHIHARA, S. **Why cannot anisometropes of high degree wear fully correcting glasses?** *Klin. Monatsbl. f. Augenheilkunde*, February, 1914.

57. LANDRIEU. **Pseudo-accommodation in aphakia.** *Ann. d'ocul.*, cli., p. 225.

58. LEVINSOHN. **Demonstration of histological sections of eyes of monkeys made myopic, and the origin of myopia.** *Meeting of the Berlin Ophthal. Society*, March 19, 1914.

59. SCHNEIDER. **The form of the lens in accommodation.** *Annales d'ocul.*, cli., p. 221.

60. WOLFFBERG. **Disturbance of perspective vision by correcting binocular cylindrical glasses.** *Wochenschr. f. Ther. u. Hyg. d. Auges*, xvii., p. 37.

SCHNEIDER (59, **The form of the lens in accommodation**) has fixed the human lens in a condition of accommodation by v. Pflugk's method. He used eyes of children that were either still-born or had died shortly after birth. Eserine was instilled half an hour after death and the eye enucleated shortly afterward. After freezing with liquid carbonic acid the eye was divided into two equal halves and photographed. The accommodative lenticonus and the flattening of the anterior chamber could be demonstrated.

CAUSÉ.

CHEVALLEREAU (54, **Apparent partial accommodation in aphakia**) reports the case of a man 43 years old with bilateral aphakia and large operative colobomata, who had an apparent accommodation. The vision of the right eye was 1 with + 10,

that of the left 0.6 with + 8.5. With the same glasses he could read Wecker No. 4 with each eye alone, and No. 3 with both together. The same glasses were used for near and distance without any displacement. He found neither a stenopaic aperture, nor a protrusion of the vitreous into the pupil, and could give no explanation.

CAUSÉ.

LANDRIEU (57, **Pseudo-accommodation in aphakia**) reports a case of this nature met with in an aphakic boy 9 years old, in whom there was a quite small aperture in a dense secondary cataract. The vision for both distance and near was almost exactly the same with glasses between + 15 and + 19. Vision of $\frac{5}{8}$ was obtained with + 15, with which he could also read No. 3 of Parinaud's test types. In this case it was without doubt a stenopaic phenomenon.

CAUSÉ.

HAY (55, **The development of myopia**) looks upon the modern demand of education as a large factor in the production of myopia. He suggests (while not looking upon all cases as thus explained) that the immediate correction of exophoria in emmetropia or low hypermetropia would prevent the onset of myopia, and would reduce the percentage in our schools.

CURRAN.

CARSTEN (53, **Refraction of 600 school children**) found the proportion of myopes in the schools of Charlottenburg and Schoeneberg to be only 1.46%, and therefore does not believe that for these schools myopia can be considered a school disease. He deduces from his material that a myopia of over 9 D. does not depend on near work. He found maculæ about equally present on the corneas of myopic, hypermetropic, and astigmatic eyes, so doubts that they influence the refraction.

LEVINSOHN (58, **Histological sections of eyes of monkeys made myopic**) showed the histological sections of the eyes of two monkeys that had become very myopic through having their faces kept in a horizontal position for several hours daily. The first monkey, which was emmetropic at the beginning of the experiment, had a myopia of 7 and 9 D. at the end of a year, the second had a myopia of 3 D. at first, which had increased to 14 and 15 D. at the end of nine months. Coincidently with the myopia a temporal conus and a nasal supertraction over the

papilla had developed. The sections showed the well-known histological signs of myopia in human eyes. The changes, showed in his opinion the absolute impossibility of the theories hitherto held concerning myopia, and indicated the correctness of his own theory, that the exciting factor in the origin of myopia must be sought in the bending of the head and body and the force of gravitation thus caused to act upon the eye.

ADAM.

ISHIHARA (56, **Why cannot correcting glasses for high degrees of anisometropia be worn?**) experimented with artificial anisometropia of — 3 and — 5 D. produced with Fick's contact glass, and found that in fact no difference was noticeable between the sizes of the retinal images with full correction, and that good stereoscopic vision was obtained through the centers of the glasses. Diplopia was annoying principally when the anisometrope looked through the marginal portions of the glasses.

WOLFFBERG (60, **Disturbance of perspective vision by correcting binocular cylindrical lenses**) has an astigmatism of 1 D. with an oblique axis. With one eye corrected everything is clear and the perspective unchanged, but distortion appears with binocular correction. To explain this phenomenon which everyone is familiar with, he suggests the following: Each uncorrected eye sees objects in astigmatic distortion, *e. g.*, the moon as an oblique oval, while with both eyes it looks round. This he thinks is due to a correction of the astigmatism in the binocular act of vision that he calls a "psychical correction." If now the astigmatically distorted retinal images, on the psychical correction of which the normal perspective vision has been built up, is corrected optically, the result must naturally be a distortion.

IX.—THE MOTOR APPARATUS OF THE EYE.

61. KAZ. **Heterophoria in school children due to faulty position.** *Wochenschr. f. Ther. u. Hyg. d. Auges*, xvii., p. 133.

62. LAFON. **Vision of nystagmics.** *Ann. d'oculistique*, cli., p. 4.

63. TERRIEN and PRELAT. **Paralysis of the sixth pair, associated with bilateral deafness, after stovainization of the spinal cord.** *Arch. d'ophtal.*, xxxiv., p. 111.

64. VON HIPPEL. **Congenital cyclic disease of the oculomotorius with monolateral spasm of the accommodation.** *Klin. Monatsbl. f. Augenh.*, 1., p. 99.

TERRIEN and PRELAT (63, **Paralysis of the sixth pair and deafness after spinal anæsthesia**) report the case of a patient 63 years old who was operated on for inguinal hernia under spinal anæsthesia with stovain. Fourteen days later a paresis of the right external rectus appeared, which passed away in two months. It is probable that the symptoms were caused by a meningeal reaction of toxic or infectious nature.

CAUSÉ.

VON HIPPEL (64, **Congenital cyclic disease of the oculomotorius**) reports the case of a girl 18 years old in whom all the symptoms of cyclic paresis of the oculomotorius were present, including involvement of the upper lid. The palpebral fissure was 5*mm* wide; the lid would then rise with twitching movements and sink again after twenty to twenty-five seconds. While the lid was elevated the divergence of the eyes disappeared, giving place to an adduction past the middle line, and at the same time a myosis of the pupil set in. The diameter of the pupil fluctuated between 2 and 5*mm*.

When school children bring the print too near the eyes in reading, an overstrain is brought upon the convergence, according to the views of KAZ (61, **Heterophoria in school children due to faulty position**) which is harmful if insufficiency previously existed in consequence of anæmia, neurasthenia, etc. This results in a transient esophoria followed by exophoria, at first only for distance, later also for near. Kaz opposes both operative treatment and the use of prisms, but advocates first of all correction of the faulty positions assumed by the children, improvement of the illumination of the school room, and treatment of the neurasthenia or other condition present.

LAFON (62, **Vision of nystagmics**) studied this subject on a physician 33 years old who could voluntarily produce nystagmus and who commonly had normal vision. He could produce nystagmus at any time by a strong convergence; at the same time the vision fell to $\frac{1}{5}$, homonymous diplopia appeared always with the images the same distance apart, the pupils contracted, and a spastic myopia of about 4 D. set in. During nystagmus the objects seemed to have rapid little horizontal motions, a condition not described by patients with congenital nystagmus and with amblyopia. The conclusions drawn are as follows: The bad vision of industrial and congenital nystag-

mus is due to the oscillations, together with such secondary causes as myopia and strabismus. Inversely in amblyopic nystagmus the visual disturbance is primarily caused by lesions in the cornea or the refractive media and is not increased by the oscillations. In congenital, amblyopic, vestibular, and symptomatic nystagmus, in nervous diseases, there is an alteration of binocular vision through a contracture of the convergence associated with homonymous diplopia, while in professional nystagmus there is a paresis of convergence resulting in crossed diplopia. CAUSÉ.

X.—LIDS.

65. BOURDIER. **Perithelioma of the lid.** *Annales d'oculistique*, cli., p. 50.

66. LANDRIEU. **Two cases of trichophytosis of the lid.** *Ibid.*, p. 42.

LANDRIEU (66, **Trichophytosis of the lid**) adds two cases to the fifteen hitherto to be found in literature of palpebral trichophytosis. The first case was met with in a girl 10 years old, who had near the external canthus several vesicles as large as a franc, filled with yellowish fluid and covered with a yellow scab. The second case was in a boy 9 years old, in whom the disease resembled herpes circinatus near the outer canthus. Trichophyton crateriforme was found. Both cases healed promptly under treatment with tincture of iodine. The disease may appear in two forms, in circles as herpes or sycosis, when it affects the lashes or brows secondarily, as in both of these cases, or as a blepharitis ciliaris in which the margin of the lid is unevenly affected with healthy parts lying between the diseased. The diagnosis of the first form is easy, that of the second difficult. CAUSÉ.

BOURDIER (65, **Perithelioma of the lid**) observed a case of the very rare perithelioma of the lid. The tumor was totally encapsuled, the cells were grouped typically about the capillaries and had an epitheloid appearance. The prognosis is not perfectly good. CAUSÉ.

XI.—LACRIMAL ORGANS.

67. ELLIOTT, R. H., and INGRAM, A. C. **Six cases of tumors of the lacrimal gland, with an account of the pathological findings.** *Ophthalmoscope*, February, 1914, p. 66.

68. GIULINI. **Syphilitic inflammation of the lacrimal gland.** *Diss.*, Erlangen, 1914.

69. ROSENTAL, W. A. **Diseases of the lacrimal passages.** *Westn. Ophthal.*, XXX., p. 53.

70. WESSELY. **Treatment of dacryocystitis with injections of tincture of iodine.** *Wuerzburger Aerzteabend*, February 17, 1914.

ROSENTAL (69, **Diseases of the lacrimal passages**) observed a case of suppuration in the upper canaliculus while the lower canaliculus and the sac were intact. On opening the canaliculus he found a little foreign body. MERTENS.

WESSELY (70, **Treatment of dacryocystitis with injections of tincture of iodine**) reports four more cases in which he has successfully employed this form of treatment. The results vary and cannot always be predicted in advance. The secretion often ceases after a single injection, but repeated injections are necessary in other cases. Sometimes a recurrence takes place very soon and the lacrimal sac has to be enucleated. It is worth while to try this conservative form of treatment in any case. KOELLNER.

ELLIOTT and INGRAM (67, **Tumors of the lacrimal gland**) had five cases of tumor of the lacrimal gland in eleven months. No others were found in a search five years back in hospital records. They all had a rapid course, early recurrence, and stretched far back into the orbit. In every case the accessory portion of the lacrimal gland was involved. It appeared like an almond under the conjunctiva. The patients' homes were far apart. In two cases the pathological diagnosis was endothelioma, in two sarcoma, one with spindle and one with round cells; one was not examined.

CURRAN.

In one of the two cases of syphilitic inflammation of the lacrimal gland reported by GIULINI (68, **Syphilitic inflammation of the lacrimal gland**) the syphilis was acquired, in the other it was congenital. In the former the double dacryoadenitis set in with stormy symptoms, a chill and a considerable rise of temperature, and the patient gave the impression of being a very sick man. Together with the enlargement of the glands there was great œdema of both lids, chemosis of the conjunctiva, exophthalmos, and limitation of movement of both eyes in all directions. HOROVITZ.

XII.—ORBITS, EXOPHTHALMOS, ACCESSORY SINUSES.

71. GIFFORD, H. **The hard plug method of controlling hemorrhage deep in the orbit, as illustrated in a case of aneurysmal varix.** *Ophthalmic Record*, February, 1914.

72. GINSBURG, J. **Pulsating exophthalmos.** *Westn. Ophthal.*, xxx., p. 279.

73. LEVINGER. **Sarcoma of the left ethmoid with rupture into the orbit and proliferation into the left maxillary sinus.** *Muench. med. Wochenschrift*, p. 106.

74. PURTSCHER, A. **Exophthalmos and multiple defects in the bones of the skull.** *Wiener med. Wochenschrift*, 1914, p. 44.

75. RUTTIN, O. **A case of pseudotumor of the orbit.** *Ibid.*, p. 44.

76. SEBILEAU. **Three cases of cellulitis of the orbit following a diffuse osteitis due to an alveolar osteitis.** *Ann. d'ocul.*, cli., p. 50.

SEBILEAU (76, **Cellulitis of the orbit from bad teeth**) reports three cases of orbital cellulitis following diffuse periosteitis of the face caused by a very infectious perioditis. The course was the same in all three: Infiltration of the lids, chemosis, ophthalmoplegia externa, exophthalmos, and impairment of vision up to complete blindness. In two the paralytic symptoms were recovered from, but the blindness remained total. In the other almost perfect vision was restored. The general symptoms were not particularly severe. There was a mixed infection in all of the cases, the anaërobic organisms playing a prominent part. The periostitis of the bones of the face resulted in the casting off of many little sequestra. The little abscesses of alveolar origin frequently to be observed in the region of the lacrimal sac and upper jaw originate by way of the periosteal lymph passages.

CAUSÉ.

In RUTTIN'S (75, **Pseudotumor of the orbit**) case the lids had been swollen for four weeks, then exophthalmos forward and downward appeared on the left side, while the margins of the papilla were somewhat veiled. Later a firm, rough mass could be felt beneath the supraorbital arch. The Wassermann and tuberculin reactions, and a rhinological examination were negative. Exploratory excision revealed a chronic inflammation with no guide to its ætiology. The tumor disappeared under energetic inunctions, the exophthalmos went back, the eyeball regained its motility, and the fundus and vision again became normal.

In LEVINGER'S (73, **Sarcoma of the left ethmoid**) case the sarcoma of the ethmoid first caused the eyeball to be protruded outward and downward, the margins of the papilla to be hazy, and the vision to be reduced to counting fingers. Examination of the nose revealed a little tumor in the middle fossa, which proved histologically to be a round-celled sarcoma. At the operation it was found that the tumor had occupied the entire maxillary sinus and had broken through into the orbit.

GINSBURG (72, **Pulsating exophthalmos**) reports the following case: A boy 18 years old received a blow on the left side of the head. The next day he had exophthalmos of the right eye in which pulsation with the characteristic murmur appeared on the ninth day. There were two choroidal ruptures in the left eye which presented nothing special. Systematic compression of the carotid produced no result. Ligatio of the right common carotid gave only a slight and very transient benefit, and an intraorbital operation became necessary.

MERTENS.

PURTSCHER (74, **Exophthalmos and defects in the skull.**) Showed a child 4 years old in whom an exophthalmos of the left eye suddenly appeared a year and a half before. At that time multiple defects in the bones of the skull were noticed. About a month ago exophthalmos of the right eye appeared. There were now numerous irregular defects in the bones of the vault of the skull, open fontanelles, and pulsation of the brain. The vision was $\frac{6}{24}$, and the papillæ were slightly pale on the temporal side. The X-rays showed defects also at the base and in the orbit. Syphilis, hydrocephalus, and rickets were excluded. Chloroma was suspected. In the discussion Lauber mentioned two similar cases.

GIFFORD (71, **Hard plug method of controlling hemorrhage deep in the orbit**), after repeated operations on the orbit in this case, finally extirpated the contents and stopped the recurring hemorrhages by a wooden plug after other means, such as the galvanocautery, had proved useless. ALLING.

XIII.—CONJUNCTIVA.

77. ADAMUECK. **Some observations concerning local amyloid of the conjunctiva and cornea.** *Zentralbl. f. prakt. Augenheilk.*, January and February, pp. 1 and 33.

78. BAYER. **The formation of transient nodules in the bulbar conjunctiva in tuberculosis.** *Klin. Monatsbl. f. Augenheilkunde*, January, p. 115.

79. DARLING, C. G. **The treatment of trachoma with special reference to expression and friction with the author's ground glass rod.** *Illinois Medical Journal*, December, 1913.

80. GROS. **Multiple cysts in the conjunctiva tarsi.** *Zeitschrift f. Augenheilkunde*, March, 1914, p. 232.

81. HAAS. **Treatment of gonorrheal ophthalmia neonatorum with noviform.** *Wochenschr. f. Ther. u. Hyg. d. Auges*, 1913, No. 10, p. 77.

82. LUEDDE, W. H. **Simple and multiple papillomata of the conjunctiva.** *American Journal of Ophthalmology*, March, 1914.

83. MCKEE, HANFORD. **Metastatic gonorrheal conjunctivitis with keratitis and iritis. Two cases.** *Ophthalmoscope*, March, 1914.

84. MCREYNOLDS. **Studies of the nature and treatment of pterygia.** *Ophthalmoscope*, March, 1914.

85. WADDY, R. GRANVILLE. **A case of bilateral annular trachomatous pannus.** *Ophthalmoscope*, February, 1914.

86. WISCHHUSEN. **A contribution to the treatment of ophthalmia neonatorum.** *Diss.*, Berlin, 1914.

87. WOLFFBERG. **Noviform treatment of ophthalmia neonatorum.** *Wochensch. f. Ther. u. Hyg. d. Auges*, No. 20.

HAAS (81, **Treatment of gonorrheal ophthalmia neonatorum with noviform**) recommends noviform, and reports three cases of blennorrhea without corneal complications and with gonococci that were cured within a few days by the free application, twice a day, of a 10% noviform ointment.

At the suggestion of Haas, WOLFFBERG (87, **Noviform treatment of ophthalmia neonatorum**) treated three serious cases of ophthalmia neonatorum with noviform ointment, combined in two with the silver treatment, applying a 10% ointment three times a day and just as often at night, each time after a thorough cleansing of the sac with a 0.02% solution of hydrargyrum oxycyanatum. The results were excellent, apparently perfect healing in a week.

The clinical treatment of ophthalmia neonatorum in the eye clinic of the Charité is cleansing the eyes every hour or half hour day and night with a 3% lukewarm solution of boric acid, avoiding any touching or wiping and a bath of the eyes every three hours with a 5% solution of protargol. WISCHHUSEN (86, **Treatment of ophthalmia neonatorum**) gives the clinical histories of one hundred cases treated in this manner.

MCKEE'S (83, **Metastatic gonorrheal conjunctivitis**) two

cases showed symptoms of general infection by the gonococcus, while the bacteriological examinations of the eye were negative.

CURRAN.

Multiple cysts of the conjunctiva were first described by Vossius in 1896. GROS (80, **Multiple cysts in the conjunctiva tarsi**) has seen two more cases. In all three there was more or less hyperæmia and swelling of the conjunctiva tarsi of both upper lids. In the hyperæmic conjunctiva were multiple groups of rather prominent spots, about the size of millet seeds. The history was that a conjunctivitis had existed for a year, and this was considered the cause of the clinical picture. The parts of the conjunctiva that were most affected were excised superficially, and a row of hollow spaces were found just beneath the conjunctival epithelium, parts of which were filled by concentrically laminated concretions. These cysts could not be considered to be retention cysts of pre-existing glands.

LUEDDE (82, **Papillomata of the conjunctiva**) found small separate tumors scattered over the ocular and palpebral conjunctiva of one eye in a colored child. One of the masses was large enough to project between the closed lids.

ALLING.

BAYER (78, **Transient nodules in the bulbar conjunctiva in tuberculosis**) reports seeing a number of probably tuberculous nodules as large as pinheads, containing no bacilli, in a woman 19 years old who had had an attack of tuberculous iridocyclitis and episcleritis. The nodules disappeared in a short time and were not followed by sequelæ. Redslob has seen similar nodules after a diagnostic instillation of tuberculin into the conjunctival sac. Axenfeld mentions the analogous volatility of periphlebitic foci in young tuberculous persons.

Amyloid of the conjunctiva appears, according to ADAMUECK (77, **Local amyloid of the conjunctiva and cornea**), chiefly in persons in the best years of their lives, about 50% between the ages of twenty-one and thirty-five. The disease is purely local and is frequently found in men who are excellently well nourished. Its frequent association with trachoma is striking, without any close connection being proved. The seat of predilection is the conjunctiva tarsi and the transition folds; sometimes the process begins in the ocular conjunctiva, and may be

confined to it. The plica semilunaris is often affected, the caruncula lacr malis more rarely. He reports three cases, one of which had amyloid of the cornea. From many former pathological studies, experiments, and the conditions present in these cases he maintains that the cells themselves do not undergo amyloid degeneration in amyloid of the conjunctiva, but that the amyloid is deposited between the cells and the fibers of the tissue.

From his own experience and a canvas of the experience of other American ophthalmologists, with the distribution and rate of growth of pterygia in mind, McREYNOLDS (84, **Nature and treatment of pterygia**) concludes that they are produced by prolonged irritating action of several factors. Chief among these are heat, dry atmosphere, high winds, exposure to sunlight and abundance of dust, especially of an alkaline character. Post-operative treatment should have regard to these factors. The author describes in great detail the technic of his well-known operation for pterygium.

CURRAN.

DARLING (79, **Treatment of trachoma**) uses a ground glass rod which is plane on the side that comes in contact with the cornea. The conjunctiva is massaged with this rod with or without medication.

GROUT.

WADDY (85, **Bilateral annular trachomatous pannus**) reports a case of trachoma in a boy, in which there was an annular pannus with involvement of the conjunctiva of the bulb. Vascularization was very free in the bulbar masses and in the pannus. The case was acute in course and responded well to treatment.

XIV.—CORNEA AND SCLERA.

88. ADAMS, P. H. **The operative treatment of conical cornea.** *Ophthalmoscope*, March, 1914.

89. BAHR. **Experiences in the treatment of corneal ulcers and wound infections with tincture of iodine.** *Klin. Monatsbl. f. Augenheilk.*, January, p. 137.

90. BLOK, D. J. **Keratitis filamentaria.** *Nederl. Tijdschr. voor Geneesk.*, 1914, i., No. 12.

91. DANTRELLE. **Interstitial opacities of the cornea dating from infancy.** *Annales d'oculistique*, cli., p. 52.

92. DARIER. **Protection of corneal wounds by covering them with conjunctiva.** *La clinique ophtalm.*, xx., p. 13.

93. HILLION. **Filamentous keratitis by a conjunctival covering and prolonged bandaging.** *Annales d'oculistique*, cli., p. 224.

94. KUHNT. **Treatment of ulcus corneæ serpens.** *Med. Klinik*, p. 349.

95. SANTOS-FERNANDEZ, J. **Four cases of corneoscleral dermoid tumors.** *Medical Record*, January 10, 1914.

96. VON SZILY (sen.). **Chemotherapy of syphilitic keratitis.** *Wiener-Klinische Wochenschrift*, No. 7.

VON SZILY (96, **Chemotherapy of syphilitic keratitis**) has obtained good results from the use of salvarsan and neosalvarsan. In obstinate cases he employed from fifteen to twenty infusions, and the treatment lasted from four to ten weeks. The condition was made transiently worse after the first infusion, but after the later ones the opacities cleared up almost completely, usually leaving perfect vision. In several cases the other eye was temporarily attacked during the course of the treatment.

DANTRELLE (91, **Interstitial opacities of the cornea**) reports the case of a man 34 years old, who had interstitial corneal opacities that had existed from childhood, consisting of a central white spot with scattered white points situated deep in the parenchyma and showing no traces of vascularization. There was also a slight cloudiness in the peripheral parts of the cornea. Wassermann's reaction was positive, though the patient had acquired syphilis shortly before. Interstitial keratitis could be excluded as the cause of the opacities because of the absence of vessels, and nodular keratitis was also excluded by the deep situation of the spots. CAUSÉ.

BLOK (90, **Keratitis filamentaria**) observed several patients with numerous little nodular proliferations of the epithelium of the cornea that grew out like threads. Neighboring threads interwove together. The cause is unknown. They were found in various diseases of the eye associated with high and subnormal tension. Treatment consists of abrasion, but recurrences are not uncommon. B. P. VISSER.

HILLION (93, **Filamentous keratitis**) cured a very obstinate case of filamentous keratitis within fourteen days by covering the entire cornea with conjunctiva bulbi, and keeping the eye quiet under a bandage for several days. CAUSÉ.

ADAMS (88, **Operative treatment of conical cornea**) gives the results of twenty of his cases in the Oxford Eye Hospital. He used the electric cautery at the apex of the cone or just below it. In the last eight cases he first of all cauterized the apex of the cone till well flattened, and then did an Elliott trephine above with a visual iridectomy. He regards the trephine as a useful procedure in severe cases. The lessened tension helps to take the strain from the weakened cauterized cornea, and thus preserves a better curve. In all the twenty cases the vision was improved.

CURRAN.

SANTOS-FERNANDEZ (95, **Corneoscleral dermoid tumors**) reports four cases of dermoid cyst that occurred in fifty thousand eye patients of which he has kept the records. The substance of the tumor in all four cases was hard, fibrous, and somewhat like cartilage. In two of the cases hair was seen, but in no case were glands found.

GROUT.

BAHR (89, **Treatment of corneal ulcers and wound infections with tincture of iodine**) has obtained good results in this way in over five hundred cases. The action of the iodine does not extend beyond the area not covered by epithelium. The scar, which forms quickly, is smaller than that produced by the galvanocautery. A burning of the conjunctiva through the closure of the lid must be avoided. The after treatment consists of wet dressing and heat to abate the pain which is often very severe. He confirms what Wessely says regarding the treatment of dacryocystitis with iodine, though the effect may be transient in ectasia of the sac.

DARIER (92, **Protection of corneal wounds**) reports good results from the use of ethylhydrocuprein in the treatment of ulcus serpens. In three cases the powder was applied directly to the ulcer and was also instilled in a 1 or 2% oily suspension. The preparation has a chemotherapeutic effect upon pneumococci and their derivatives; it has a specific bactericide action that favors the work of the antibodies. Staphylococci are scarcely influenced by it. With an exact bacteriological diagnosis, ethylhydrocuprein is very valuable in the control of pneumococcal infections. The best way to use it is to cocainize the eye, apply a bit of cotton saturated with the

remedy to the ulcer for two or three minutes, and then instill a drop of the solution every hour until the ring of infiltration disappears. A 10% solution of zinc sulphate is recommended in diplobacillus diseases. The use of serum is particularly recommended in streptococcus and staphylococcus infections; the best serum that can be obtained should be used and valuable time should not be lost in the production of a specific serum.

CAUSÉ.

KUHNT (94, **Treatment of ulcus serpens**) also reports good results from the treatment of ulcus corneæ serpens with ethyl-hydrocuprein. A 1% solution is instilled every hour and kept in the eye for from half a minute to a minute. At the end of twenty-four hours the pneumococci have for the most part disappeared and the defect has begun to become covered with epithelium.

XV.—IRIS AND PUPILS.

97. BERGMEISTER. **Fragment of iron in the iris.** *Ophthalm. Gesellschaft*, Vienna, December 17, 1913.

98. CHRISTIANSEN. **Left-sided paralysis of the sympathetic.** *Ugeskrift foer laeger*, 1914, No. 8.

99. SCHOENHALS. **Pupillary immobility.** *Berl. Militaeraerztl. Gesellsch.*, November 21, 1913.

100. WESSELY. **Iridencleisis in congenital buphthalmos.** *Wuerzburger Aerzte-Abend*, February 17, 1914.

WESSELY'S (100, **Iridencleisis in congenital buphthalmos**) case of an eye treated for congenital buphthalmos with iridencleisis was re-examined at the end of four and three quarters years after the operation and it was found that a good result had been produced. The other, likewise buphthalmic eye, was totally blind.

BERGMEISTER (97, **Iron in the iris**) reports a case in which a piece of iron had been visible lying on the iris for twenty-six years. The lens was clear, the vision $\frac{6}{6}$ with —.75. The patient refused to permit any operation as no bad consequences had resulted as yet.

CHRISTIANSEN'S (98, **Paralysis of the sympathetic**) case was one of a teacher who had a hæmatoma between the throat and the parotid gland. This was operated on. The symptoms

complained of included vomiting, palpitation of the heart, visual disturbances, difficulty in swallowing, aphonia, myosis, and enophthalmos, hence disturbances attributable to the vagus, glossopharyngeus, and hypoglossus were present as well as those caused by an affection of the sympathetic. All of the symptoms were referred to the pressure caused by the hæmatoma, and were relieved by the operation.

SCHOENHALS (99, **Pupillary immobility**) accidentally noticed an immobility of the pupils of a recruit. The pupils reacted neither to light nor to convergence, and the patellar and Achilles tendon reflexes were absent. The question whether the diagnosis of commencing tabes is justified by these symptoms in the absence of all other symptoms must be answered in the affirmative. These cases of juvenile tabes are not common. The family history showed that the patient's mother had several abortions, so congenital syphilis may be suspected. Wassermann's reaction was negative, but this does not prove its absence.

XVI.—LENS.

101. CONSTANTINESCU. **Advancement of the conjunctiva in cataract operations.** *Klin. Monatsbl. f. Augenheilkunde*, March and April, p. 473.

102. DUPUY-DUTEMPS. **Advancement of the conjunctiva in extraction of cataract.** *Annales d'oculistique*, cli., p. 49.

103. FRIEDENBERG, P. **The conjunctival flap in cataract extraction. A new procedure.** *American Journal of Ophthalmology*, February, 1914.

104. GOLDSCHMIDT. **The mechanism of the disintegration of the lens and of the absorption of the products.** *Muench. med. Wochenschr.*, 1914, p. 657.

105. KOMOTO. **A prophylactic measure in difficult extraction of the lens.** *Zentralbl. f. prak. Augenheilkunde*, 1914, p. 41.

106. LANDER, EDWARD. **Industrial electricity as a cause of cataract.** *Ophthalmology*, January, 1914.

107. POLACK. **Dehiscence of a zonular cataract.** *Ann. d'ocul.*, cli., p. 227.

108. TRUC. **Extraction of cataract with a little free conjunctival flap.** *Revue générale d'ophtalmologie*, xxxiii., p. 49.

LANDER'S (106, **Industrial electricity as a cause of cataract**) patient 22 years old, received a shock from a transformer used to change a direct current of 22,000 volts to 1000 volts. He fell unconscious on the wires and received skin burns. Fourteen months after the accident his vision was R. $\frac{20}{40}$, L. $\frac{20}{20}$.

Both lenses showed dust-like opacities beneath the anterior capsule. Eight months later the opacities had increased and vision was R. $\frac{3}{100}$, L. $\frac{3}{10}$. He has found references in literature to seven similar cases. In all, the cataracts began in the anterior portion of the lens, supporting the belief that electricity affects the epithelium of the lens. ALLING.

POLACK (107, **Dehiscence of a zonular cataract**) reports the case of a girl, 16 years old, who developed a dehiscence in the cataract in her right eye of an elongated rhomboid form, in the outer-lower third. The lens fibers bounding this zone were swollen about their sutures in the stellate figure, which also had an atypical position. A little clear space could be made out in the left eye at the crossing of the lenticular sutures. This observation supports the theory that explains the pathogenesis of lamellar cataract as an inhibition in the development of the lenticular fibers. CAUSÉ.

GOLDSCHMIDT (104, **Mechanism of the disintegration of the lens and of the absorption of the products**) says that the absorption of the lens is a purely physico-chemical process. The albumin of the lens is disintegrated by a proteolytic ferment into soluble products having small molecules, which pass out through Schlemm's canal. The autolytic ferment present in the lens itself must be taken into account; this dialysis advances when the removal of the dialysate is unimpeded. A third factor is the proteolytic ferment of the leucocytes, which assists inconstantly in the absorption of the swollen lenticular masses.

DUPUY-DUTEMPS (102, **Advancement of the conjunctiva in extraction of cataract**) recommends the covering of the operation wound with conjunctiva as a protection against post-operative infection. For this purpose he dissects up a flap of conjunctiva before beginning the operation, and inserts two sutures in such a way that after the operation has been completed they will draw the conjunctiva over the wound when they are tied. He has operated on seventy-five cases in this way, twenty-one in the capsule. CAUSÉ.

CONSTANTINESCU (101, **Advancement of the conjunctiva**) advocates a similar procedure as a protection against the infection that is always to be feared after a cataract extraction. The objections that the time of the operation is lengthened

and that the sutures are a nuisance, are overborne by the advantages of an exclusion of infection, a limitation to the loss of vitreous, and the rapid closing of a gaping wound.

TRUC (108, **Extraction of cataract with a conjunctival flap**) makes the flap 1 or *2mm* broad as evenly as possible and concentrically to the curvature of the cornea as he completes the corneal section. This flap he folds back over the cornea to perform the iridectomy and the subsequent acts of the operation. The advantages are a good union of the lips of the wound, rapid restoration of the anterior chamber, protection against infection, rapid cicatrization, and little post-operative astigmatism. The disadvantages are the difficulty of the procedure, the in-rolling of the flap, and the hemorrhage, which may be annoying. CAUSÉ.

FRIEDENBERG (103, **The conjunctival flap in cataract extraction**) recommends a conjunctival injection of an indifferent or anæsthetizing fluid so as to raise a bleb at the place where a conjunctival flap is desired. By this procedure the section can be made in a single plane at the corneoscleral junction.

ALLING.

KOMOTO (105, **Prophylactic measure in extraction**) forms a conjunctival flap with sutures inserted so that when tightened they will draw the flap over the wound as a protection when loss of vitreous is threatened. This method will also protect against infection.

XVII.—VITREOUS AND CHOROID.

109. COATS, G. **Infarction of the posterior ciliary arteries.** *Ophthalmoscope*, December, 1913.

110. COUSIN. **Metastatic ophthalmia due to colon bacilli.** *Annales d'oculistique*, cli., p. 230.

111. KAMBE. **Choked disk in leucocythæmia with yellow discoloration of the fundus by a lymphoma of the choroid.** *Klin. Monatsbl. f. Augenh.*, Jan., p. 79.

112. VASQUEZ BARRIÈRE. **Ocular infection with pyocyaneus bacilli. Double panophthalmitis and pseudomembranous conjunctivitis.** *Annales d'oculistique*, cli., p. 38.

VASQUEZ BARRIÈRE (112, **Ocular infection with pyocyaneus bacilli**) observed in a miner 27 years old who had a number of injuries of the face as the result of a mine explosion, perforating

wounds of both eyes and subsequently a pyocyaneus infection that resulted in a bilateral panophthalmitis and pseudo-membranous conjunctivitis. The left eye had to be exenterated, the pus in the right escaped spontaneously through the wound. The classical signs of panophthalmitis developed very early, before the purulent infiltration had time to penetrate into the vitreous and the deep membranes, a fact that has been thought to be due to the rapid diffusion of the pyocyaneus toxins. The infection was probably caused by washing with dirty water. CAUSÉ.

COUSIN (100, **Metastatic ophthalmia due to colon bacilli**) observed in a person suffering from gout a metastatic ophthalmia that developed in consequence of a bilateral pyelonephritis. The cornea became totally opaque without pain, the anterior chamber was filled with a white exudate, so that it was impossible to see into the eye, there was a great swelling of the lids and chemosis. Gelatine cultures of the pus revealed the presence of colon bacilli. CAUSÉ.

KAMBE (111, **Choked disk in leucocythæmia**) reports a case of leucocythæmia in which choked disk was found clinically. Microscopic examination revealed an enormous thickening of the choroid by an accumulation of round cells, which were for the most part lymphocytes.

COATS (109, **Infarction of the posterior ciliary arteries**) discusses two instructive cases, one of which he published in 1907, and one, recently met with, of a similar kind, both of which he thinks are due to infarction of the ciliary arteries. In both, the clinical appearances were those of idiopathic iridocyclitis of the plastic type with raised tension. In both there was a quadrangular area of choroidal atrophy eight by ten millimeters in diameter. In both, a wedge of inflammatory layer of sclera, necrosis in a larger area of choroid, and a still larger one of the retina. In the first case necrosis, and in the second indications of former necrosis. In both, the area was surrounded with inflammatory reaction of a moderate degree. CURRAN.

XVIII.—GLAUCOMA.

113. BACHSTELZ. **Inflammation of the flap after Elliott's trephining.** *Klinische Monatsblaetter f. Augenheilkunde*, January, p. 112.

114. BACHSTELZ. **Scars after sclerectomy and trephining of the sclera.** *Zeitschrift f. Augenheilkunde*, No. 1, p. 34.

115. BETTREMIEUX. **Mode of action of sclerectomy.** *Ann. d'ocul.*, cli., p. 50.

116. DUCAMP. **Contribution to the study of the cicatrization of sclero-corneal trephining.** *Annales d'oculistique*, cli., p. 53.

117. GIFFORD, H. **A case of late infection after Elliott's trephining.** *Ophthalmic Record*, January, 1914.

118. HALLI, P. **Elliott's operation.** *Westn. Ophthalm.*, xxx., p. 331.

119. HERBERT, H. **Sclerotomy and sclerectomy.** *Ophthalmoscope*, Jan.

120. JAEGER. **Results of Schloesser's operation of sclerotomy with incarceration of the iris.** *Inaug. Diss.*, Munich.

121. SCHNAUDIGEL. **The question of trephining in glaucoma.** *Klinische Monatsblaetter f. Augenheilkunde*, February, 1914, p. 256.

122. WESSELY. **Iridencleisis for congenital buphthalmos. Elliott's trephining.** *Wuerzburger Aerzte-Abend.*

BETTREMIEUX (115, **Mode of action of sclerectomy**) thinks the curative action of sclerectomy is due to a modification of the circulation, in a way analogous to Exner's theory of the action of iridectomy. The section of the small ciliary arteries in the dissection of the conjunctival flap produces a certain amount of decongestion of the eye, inasmuch as the arterial blood is directly conducted into the veins. CAUSÉ.

HERBERT (119, **Sclerotomy and sclerectomy**) reviews the dangers of both operations, and says that deliberate fistulization is wrong in principle, except in cases where true filtration is found unattainable or ineffective. In hard, painful, chronically congested eyes with poor vision, and in many secondary glaucomas, a wide open subconjunctival stoma is apparently the only possible means of keeping the tension low. The choice seems to be between late infection and certain blindness, possibly with removal of the eyeball for relief from pain. He thinks it will be regarded as unjustifiable in:

1. Hydrophthalmic eyes.
2. Early cases of chronic glaucoma.
3. Chronic simple glaucoma, with only slight elevation of tension and a much contracted field.

In groups two and three a single flap sclerotomy is best. In sclerotomy the tendency is towards filtration and sclerectomy towards fistulization. Herbert holds the former better in the greater number of primary glaucomas. He says that the difficult task of grading the results to the needs of the case must be taken up more generally. The ideal operation must

provide a linear filtrating cicatrix with minimum risk parallel to the corneal margin. Iridectomy is not needed except to keep iris from the wound. Advisable precautions:

1. Incision should be far forward.
2. Refilling anterior chamber early should be looked to.
3. Restrict cocain and eserin.

Herbert has had good results through subconjunctival puncture kept open for a day with metal plug. He has also stretched puncture with dilator.

CURRAN.

WESSELY (122, **Elliott's operation**) has had some good results from Elliott's trephining. In a young person the enlargement of the globe and the excavation retrogressed. He has seen one case of late infection without demonstrable cause three months after the operation.

As our experience with this operation broadens, late infection is becoming recognized as one of its dangers. GIFFORD (117, **Late infection after Elliott's trephining**) relates a case in which the operation seemed to have been smooth, but the membrane covering the hole was unusually thin. Two weeks later there was pus in the anterior chamber, but the inflammation was under control at the time of the report.

ALLING.

HALLI (118, **Elliott's operation**) describes fifteen operations for glaucoma in thirteen patients in the clinic at Moscow. Four of the cases were of absolute, eleven of chronic inflammatory glaucoma. The tension was reduced to normal in two; in the others it was lowered, but remained high. One case of hemorrhagic glaucoma ran a favorable course in that no expulsive hemorrhage followed the operation, such as would be expected after any other intervention. The eleven cases of chronic inflammatory glaucoma did well throughout.

MERTENS.

DUCAMP (116, **Cicatrization of scleral trephining**) reports concerning the process of cicatrization in two cases of Elliott's corneoscleral trephining. The first case was one of hemorrhagic glaucoma in a woman 65 years old, who was suffering from diabetes and renal disease. The tension was 95*mm* of mercury which was not reduced by the operation, so that enucleation was performed after twenty-seven days. The trephine hole

was totally occluded by corneal and iris tissue so that a filtration from the eye into the subconjunctival space was quite impossible. This was because of no fault in the technic of the operation, but the result of the luting of the sinus of the anterior chamber by the glaucomatous process. In the second case there was a large melanotic tumor with detachment of the retina in a woman 68 years old. The tension was 65*mm*, which was not reduced after the operation in spite of the presence of a filtration cushion; an intraocular tumor was suspected, and the eye enucleated.

CAUSÉ.

BACHSTELZ (114, **Scars after sclerectomy and trephining**) had the opportunity to examine the site of operation in a case of Lagrange's sclerectomy half a month after the operation. There was a triangular defect in the region of the limbus, from one angle of which a canal extended obliquely to the anterior chamber. The marginal portions of the defect were filled with young cicatricial tissue. The conjunctiva over the defect was very œdematous and likewise provided with young connective tissue. Firm cicatrization was found at the seat of the operation in a case that had been trephined thirty-four days before, which rendered the operation ineffective. In another case that had been trephined fifteen days previously there was far advanced cicatrization in which the iris was involved. The defect in a case that had been trephined sixty days before was filled with cellular cicatricial tissue, through which passed a minute canaliculus lined with endothelium. The tissue over the defect was somewhat œdematous.

SCHNAUDIGEL (121, **Trephining in glaucoma**) examined the trephine opening at the end of thirteen days, in which the canal which was still open externally was closed by a thin connective tissue. As the sinus of the anterior chamber was completely occluded the operation was without effect. He has not seen infection in his thirty-seven cases. When an eyeball has no tension-regulating mechanism, or a faulty one, it is impossible to estimate the effect that will be produced by the operation. One advantage is the possibility of its repetition and the coincident presence of two or three trephine openings.

BACHSTELZ (113, **Inflammation of the flap after trephining**) reports a peculiar complication. Six weeks after Elliott's

operation the opening presented a whitish gray, transversely oval protrusion which proved solid on incision, and from which staphylococcus albus was cultivated. Microscopically it consisted of a connective-tissue stroma with numerous mononucleated, polymorphonucleated, and eosinophilic cells. It was evidently a subchronic inflammation, caused perhaps by mechanical irritation.

WESSELY (122, **Iridencleisis for congenital buphthalmos**) exhibited a boy with a high degree of buphthalmos, on one of whose eyes iridencleisis had been performed five years before. This eye now had only a moderately enlarged cornea, clear media, no excavation, and good vision. The other was very buphthalmic and amaurotic.

JAEGER (120, **Schloesser's operation**) describes the technic and results of Schloesser's sclerotomy with incarceration of the iris, which he has performed for glaucoma since 1904. The incision is made as for cataract extraction, but is much smaller, at most 5*mm*. The bridge of conjunctiva is not divided, and the iris is incarcerated in about the middle of the wound. Complications are rare: two losses of vitreous, one traumatic cataract, one severe hemorrhage, five attacks of iritis or cyclitis at various times after the operation. The number of eyes operated on was 255, on 185 patients. Twenty-three were operated on twice, two three times, and one four times. Of five infantile glaucomas, two were brought to a standstill, two could not be re-examined, and one had a melanosarcoma. One hundred and one cases observed for a long time remained without complications; fifty-four of these preserved their vision and fields; in sixteen there was a functional deterioration. Twenty-one cases of absolute glaucoma were relieved of their troubles. In eight cases there was a return of high tension, but in these the iris did not remain incarcerated, and in only one that was technically free from objection was there a subsequent slight increase of tension.

(*To be Continued*)

OBITUARY NOTICE

DR. EMIL GRUENING 1842–1914

On May 30, 1914, at his home in New York, Dr. Emil Gruening, one of the pioneers of ophthalmology and otology in the United States, passed away at the age of seventy-one. His illness was brief, and he retained to the last those qualities of heart and mind that had endeared him to all.

He was born in Hohensalza, Prussia, on the second day of October, 1842. In 1862, he came to the United States, and for a year and a half tutored in schools and private families to earn the funds for his medical education. He arrived here without friends and he received no financial assistance from any one. His success was due solely to his own efforts. In 1864 he entered upon the study of medicine in the College of Physicians and Surgeons in New York. A year later, when twenty-two years of age, he interrupted his studies by enlisting in the Seventh New Jersey Volunteer Infantry. He took part in a number of memorable battles and he was present at the dramatic surrender of General Lee at Appomattox.

He returned to New York and resumed his medical studies, graduating in 1867. For further preparation, he went abroad for three years, working in London, Paris, and Berlin, where he studied under a number of eminent masters. In 1870, shortly after his return to his adopted country, he was appointed Assistant Surgeon to the New York Ophthalmic and Aural Institute. Later he received the appointments of Ophthalmic Surgeon to the New York Eye and Ear Infirmary, Ophthalmic and Aural Surgeon to the Mt. Sinai Hospital, and to the German Hospital.

This was a very fruitful period of his life, and he never

ceased to speak of the interest of this work with Dr. Herman Knapp, for whom he had the greatest affection and admiration.

Many years later, after thirty years of active service at Mt. Sinai, he was appointed Consulting Ophthalmic and Aural Surgeon to that hospital, and Consulting Ophthalmic Surgeon to the German Hospital after serving there for twenty-three years, and Consulting Surgeon to the New York Eye and Ear Infirmary after thirty-four years of service. He was also Consulting Surgeon to the New York Infirmary for Women and Children, and Professor of Ophthalmology in the New York Polyclinic for thirteen years.

Dr. Gruening was a member of many scientific societies. He was at one time President of the American Ophthalmological Society, of the American Otological Society, of the New York Ophthalmological Society, of the New York Otological Society, of the Section on Ophthalmology of the New York Academy of Medicine, of the Section on Otology of the New York Academy of Medicine. He was also one of the Directors of the New York Eye and Ear Infirmary, President of the Society for the Relief of Widows and Orphans of Medical Men, a Member of the New York Academy of Medicine, of the County Medical Society, Medical Society of Greater New York, German Medical Society, and of the New York Physicians' Mutual Aid Association.

Dr. Gruening was a pupil of Albrecht von Graefe, the "Father of Ophthalmology," and began his lifework when ophthalmology and otology were in their earliest infancy. He practiced both ophthalmology and otology, and achieved the highest success in each, even in these days when both branches have become so highly specialized and distinct. His scientific labors in these subjects showed not only his wonderful capacity for work, but also his power of drawing the proper conclusions from his large experience.

The great number of his excellent monographs precludes even a list of their titles; but they covered a wide range of subjects of ophthalmological and otological interest and value. He wrote the chapter on "Injuries of the Eye" in the *System of Diseases of the Eye* by Norris and Oliver. He was one of the first writers to call the attention of his colleagues to the relation of the reflex ocular symptoms in nasal affections, and to point

out, in his paper entitled *Observations and Remarks on Methyl Alcohol Amblyopia*, the danger of blindness from wood-alcohol poisoning.

In the embryonic days of otology, he was the foremost surgeon in developing the modern mastoid operation, and he exercised a wide influence in advancing and making more accurate the knowledge of all cerebral complications following suppurative diseases of the middle ear. He introduced the use of platinum instruments in ophthalmic surgery, and his name has been identified with a number of surgical instruments, such as his epilation forceps, platinum cautery, magnet, etc.

In addition to his writing, Dr. Gruening was a constant attendant upon the meetings of the various societies of which he was a member. His discussions were always brief and to the point. He was listened to with great attention, for he never spoke unless he really had something to say: "He that hath knowledge spareth his words."

He was a skillful operator and his results were excellent. His examinations beforehand were most thorough, and after the operations he made the dressings himself with the greatest care. At each dressing, he made careful bedside notes of the condition of the patient, dictating these notes to one of the house staff, with directions for further treatment.

In forty-three years of practice, he never missed a day from his office on account of illness.

Dr. Gruening was twice married, first in 1874 to Rose Fridenberg, who died two years later, one child being born to them. In 1880, he married Phebe Fridenberg of New York, who, with their four daughters and one son, survives him. His home life was simple but very beautiful. He was intensely interested in the well-rounded development of his children.

During his whole life, he was an intelligent lover of the best in music and art and a diligent and extensive reader of good books, thereby keeping abreast of the latest and best thought in the scientific and literary worlds. He had a habit of reading his polyglot Bible before retiring and derived much pleasure from comparing the structures of the different ancient languages. In addition to being a classical scholar, he spoke three modern languages perfectly and four others sufficiently well for his clinics.

He employed each moment in gathering and storing up knowledge and wisdom.

He loved young men and they loved and admired him. They spoke of him affectionately as the "Old Man" or the "Grand Old Man." He had a quaint, kindly humor that was most charming. Once, in speaking about an acquaintance, some one stated that he was very popular and seemed to have no enemies. Dr. Gruening quickly replied: "Poor man, he must be very weak to have made no enemies."

In his profession, as in all other relations, Dr. Gruening held to the highest ideals. With him, everything was subordinated to principle. He knew no clique. Material consideration, expediency, favoritism, were no part of his mental make-up. Character and ability alone counted with him, and his adherence to his principles was unwavering. He demanded the truth—no matter what the cost. Though a hard taskmaster to himself, he was most tolerant of the failings of others. He never sought honors, having a profound belief that one's work must speak for itself. He "was so pure in his vocation that his virtues did plead his cause."

It was characteristic that he never associated himself with a patriotic or military organization. He had answered the call of his newly adopted country; but, the war over, he turned quietly to the conquests of peace, finding his reward, not in past glories, but in the satisfaction of work well done and of humanity benefited.

So when he left us on Memorial Day, beloved and venerated by all who had come within his noble influence, he could say with truth: "I have fought a good fight, I have finished my course, I have kept the faith." And, "were each person for whom he had performed some act of kindness to lay one blossom on his grave, he would sleep to-night beneath a wilderness of flowers."

W. H. Wilmer.